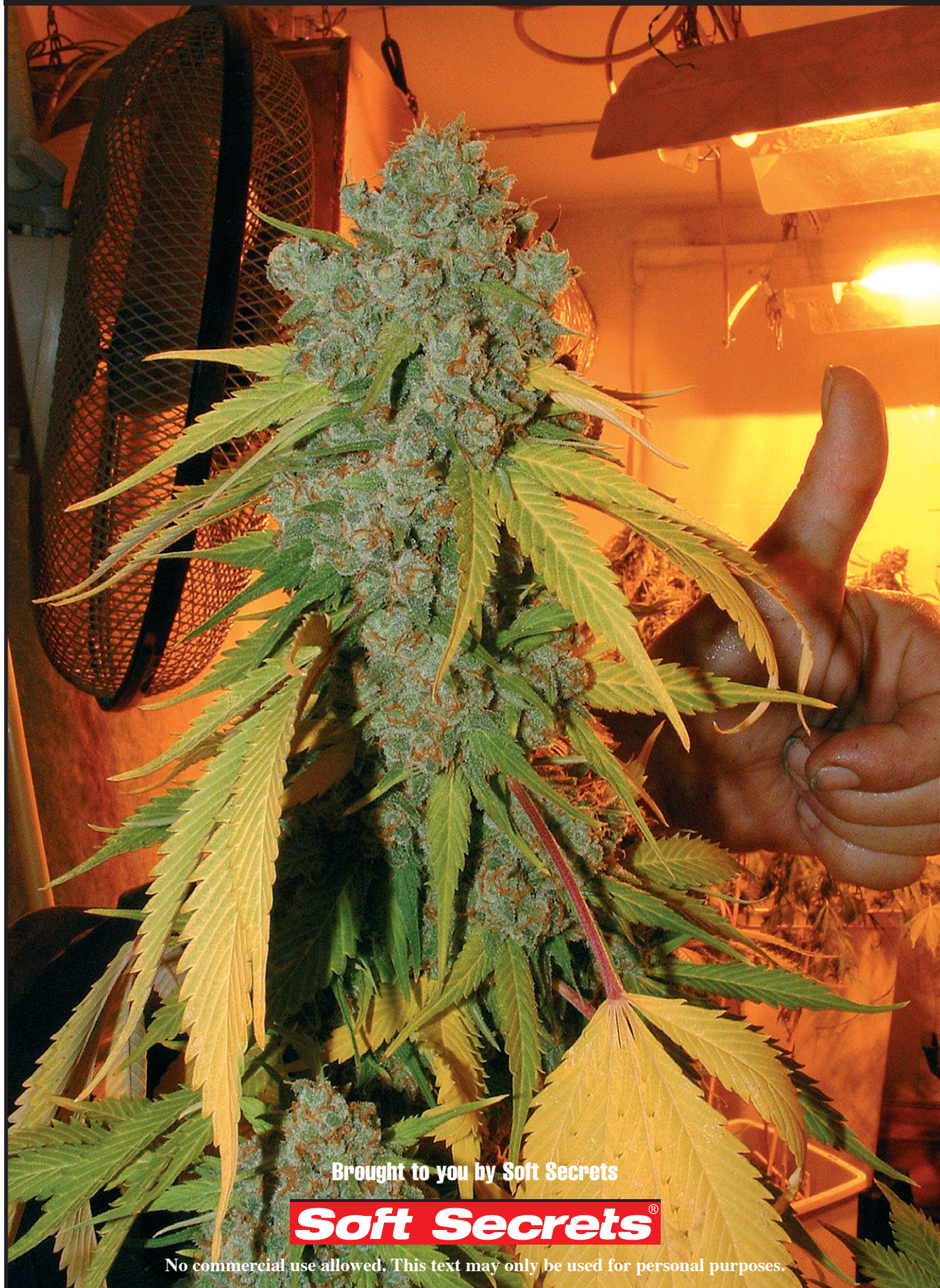




Growing for Dummies

written by Bart B.



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Growing *for Dummies* Part 1

Soft Secrets begins a new series, aimed at beginner level growers with absolutely no previous experience. As you start out, we'll be there with a step by step to explain not just the terms and sayings of the growing world, but to lend a hand as you strive towards constructing a simple growing space in your home. A series 'for Dummies' then, who after they have read all of it and have successfully trimmed their first harvest, will be able to call themselves Soft Secrets-certified growers!

So you want to grow at home, but don't know where you should begin? Begin by reading! If you're starting out for the first time you are already way down the path by having discovered Soft Secrets, even if at the moment you don't quite 'get' everything that's being talked about here – especially some of the technical terms that are used. As with all other forms of business you have first to get yourself a theoretical foundation.

So go find yourself some books on indoor growing, check out all the cannabis media, videos and talk to other growers in the many cannabis forums available on the Net. The Net forums especially are a perfect place to get your knowledge up to scratch. You'll find all levels of grower willing to share their experience, from rookies to pros and commercial growers. They'll do this with pleasure, and answer your questions really fast. This is the great advantage of a forum over reading a book, which can often leave you with unanswered questions. These can be asked straight away online, and this speeds up the whole learning process.

But you do still need to have read a basic book on the indoor growing process. This will answer 80% of your questions about growing your own cannabis in this way. You must read this book as much as possible, at least three times all the way from back to front and front to back. Everything you don't understand you can keep in mind and then ask in a forum.

You can also come here for additional information. After

several months cruising the forum, looking at lovely pictures of buds, reading others' experiences of growing, and answering that remaining 20% of your many questions, you'll be qualified to call yourself – in theory – a fully fledged grower. But as you all well know, putting theory into practice is rarely as smooth as you anticipate.

Earth

The next step is to gather your growing things. What do we all need if we're going to grow cannabis? Pots to put soil in, which should not pose any major problems. By soil I mean an earth mix, of course, and in this you have a huge range to choose from. Cheap bags of earth as sold in many gardening centres will work, but can pose many problems for the beginner. The earth contains little nutrient and is not airy enough. Well aerated soil is important for good development of the roots of our cannabis plant. By ensuring you have a well aerated soil the plant will grow more vigorously, be stronger, more healthy – just better all round. You can achieve this by adding small, white, light stones called perlite to your earth, which make it airier.

But why make things hard for yourself when they can be easy? Thanks to the many grow shops in the UK you can simply buy earth that was designed for growing cannabis in from the outset. These high-quality soil mixes contain enough of the right nutrients for the whole grow cycle once you have done a two week pre-grow. The soil is airy too, since many have perlite mixed in. It will cost you a bit more but the added



Exhaust + filter



Maxlight Lamp

value these soils offer makes them worthwhile. Earth is very important. Your plant sinks its roots into it after all, so why skimp on it? If you want to save money, do that everywhere else but on your soil. Better you buy cheaper seeds than to try and raise plants from expensive seeds sown in cheap soil. One more disadvantage of using cheap soil is that it soon gets hard and dries out. If you really, absolutely do not have room in your budget

to get the good stuff, then it's best you buy cutting compost. This is the best quality of the cheaper soil mixes and at once the most expensive too.

Above all do not buy compost used for raising flowers or suchlike. These composts are made for growing specific sorts of flowers and plants and are usually more acidic because that is how these plants like it. Our cannabis plants, however, really do not like this.

Now it has to be said that cannabis plants will pretty much grow on anything; after all it is and remains a weed. But try and indulge the plant as much as possible and she will indulge you in return come harvest time with a large yield. So make your way over to the local grow shop if you can. The biggest advantage of using good quality earth such as that from Plagron is that you have nothing or very little to do. So you do not need to add extra nutrients, for example.

Seed

We have filled out pots with earth, so what do we need now? Well obviously, raising marihuana without the cannabis plants themselves can be a little difficult. The easiest way to get hold of some is from seeds. These can be sold in most countries and you can order them without any problems. Where can you order cannabis seeds, I hear you ask?

For a start we can go back to the Net. Many sites offer cannabis seeds but not all of them are, shall we say, sincere. Buy a few from several well-known seed merchants is my advice. My personal favourite is Gypsy Nirvana in the UK, which you can visit physically or order from the Net at www.seedsdirect.to. You will find a large selection of seeds from nearly all the seed breeders from around the world for good prices. Above all the speed with which orders are processed is outstanding, not to mention that their delivery is secure and safe.

I can hear the next question on your lips: what sort should I raise? And why are some seeds so expensive and others cheap? The simplest way to explain this is that it is similar to the difference between branded clothes and unbranded. Branded clothing costs much more but is not necessarily better. The major part of the price you pay is going on the brand itself, and the same goes in the seed world, where the well-known names command the highest prices. It also has to do with the image; 'expensive' is associated with being 'better'. One company sells its seeds for more expensive prices but sells fewer than the seed company which sells its wares for cheaper prices. Also, the amount of work put into a seed's development,



General crecimiento



Small grow operation



Leganes

and that of new varieties (basically, R&D), adds to the price. Through many years' experience the quality of the seed is kept high, as with big companies such as Sensi Seeds, and the asking price is high as a consequence.

But the eventual price depends on many, many factors and my own experience is that price is not necessarily an indicator of quality. You can have good and bad experiences with expensive and cheap seeds. Even seeds picked out of your weed can be raised into decent plants.

But we still haven't got our seed, so which will we plump for? There is way too much choice, I must say. Each variety has its own qualities and foibles in growing. So the good news is you can't really make a wrong choice. So don't work yourself up into a lather choosing. But to make it easier for you: go for an Indica variety. Why an Indica? You have two basic sorts of cannabis plant: Indicas and Sativas. Indicas don't grow too large and have a short bloom period, with strong, broad stems and wide leaves.

The Sativas are the opposite, with a strong growth leading to large plants with thin leaves, and especially during flowering, are much bigger than the Indicas. You also have hybrids of the two that are primarily Indica with a little Sativa, or they can be mostly Sativa with a dash of Indica in them. Both sorts are outstanding but for a beginner there is a greater chance of success with an Indica. Sativas can be unpredictable and during flowering can triple in size. Indica varieties will double their size at most during flowering, which is way less (especially when space is limited). Indicas are therefore easier to deal with and do not hold as many surprises in store, as well as having greater resistance to stress (with less for the grower in turn).

Definitely for the grower with just a few plants in a cupboard I recommend the Indicas. Now I don't want to give the impression that a Sativa is hard to raise, but if you want to maximise your chances of a successful harvest you have got to go for an Indica. You will notice that there are a lot of these to choose from. Everyone has a personal opinion

as to what variety you should go for, so choose for yourself, as it is ultimately down to personal preference. So finally, after much um-ing and ah-ing, you've made a choice. Nice one!

Light

Our plants will not grow without light and so we have to get a grow-bloom lamp (a lamp that can be used for both stages of the bud-raising process). The lamp will determine your eventual harvest: the more light, the more weight. So more light means more weed and a larger yield. Even with a light bulb you can grow cannabis, but you're better off growing with what are known in the trade as 'TL-lamps' – you probably know them as fluorescent lights. In order to get a reasonable yield of very good quality, then a 400w-600w sodium lamp is needed. These lamps are of average strength as there are also 1000w and 2000w types, as well as 150w and 250w.

The 400w-600w lamp is perfect for us as it uses relatively little energy for the amount of cannabis it can produce. It is certainly in a different league than just switching on a regular light bulb. There are many types of light and don't let yourself get fobbed-off with anything other than a sodium light. Take the cheapest and simplest design to begin with. Air-cooled or water-cooled varieties can better be left for trying on future crops. A 400w bulb can deliver 200 grams of bud and a 600w one up to 300 grams. This is an estimated yield you might hope for as a beginner. If you get more, then count yourself lucky. If you're good, usually after a several crops, then you might hope for 300 grams from a 400w and 400 grams from a 600w light. Both these power lamps can illuminate one square meter very well and give off a reasonable amount of heat. Bear this in mind.

Via this insight we arrive at our next purchase: a suction pump with an active carbon filter. Cannabis plants need carbon dioxide (CO_2) in order to grow, which they take out of the air around them. If you do not allow fresh supplies of air to the room they are growing in, then sooner or later they are going to use it all up. Once



A ventilator is a definite must to keep the air circulating

that happens the plant growth is retarded and it will be less healthy. To prevent this happening we make sure that fresh air enters the grow room by putting in an air extractor. This sucks the CO_2 -depleted air and expels it outside, causing fresh, CO_2 -laden air to automatically flow into the space. In other words, you do not necessarily need a pump to blow fresh air back into you grow space. You can if you wish, but it is not essential.

The added advantage of having an air extractor is that we can also remove the typical smell of the cannabis plants during blooming, and to make sure that this does not attract attention outside we use a carbon filter on the extractor to remove the smell. Every extractor has a carbon filter that fits it precisely. A carbon filter is a great big tube filled with carbon. So-called active carbon has the quality of absorbing the chemicals that cause odours and neutralising them. That a carbon filter will not last an age should be obvious. Once full, they allow the odours to roam free once more. A carbon filter generally does about five harvests, so lasts about a year before needing replacement.

A good extractor with decent carbon filters is something you really cannot afford to be without if you want to grow cannabis. It will be one of the more expensive purchases if



Essential: food for the plants

you're just starting out, but just try without one and see what kind of problems you get. If you survive being found out by the smell from your plantation, your yield from the plants will still remain low thanks to the low CO_2 in the air.

To ensure the fresh air that is sucked in is evenly dispersed through your growing space we will also need one or more ventilators to provide good air circulation. By keeping the air in circulation and constantly mixing with itself, the ventilator ensures that temperature and air moisture as well as CO_2 are evenly spread throughout the space. Without a ventilator, one side of your space may be 25 degrees, and the other side 20 degrees. The heat that comes from the lamps, thanks to the ventilator, is spread throughout the space creating an even temperature. An additional benefit

of a ventilator that's left to blow across your plants is that they will develop thicker and stronger stems, which will in turn produce a better crop later on.

Nutrition

That our plants do not grow themselves is a fact, which means we also have to give them food. Liquid organic nutrient gets my seal approval just as Plagron did. As I said earlier, a good soil will have enough nutrients in it to last the whole grow. Only in the last weeks is it an idea to give some supplemental feeding, and we do this with liquid foodstuffs.

For growing indoors we only need bloom feed. Because even the cheapest soil has enough nutrient in it to complete the growth stage, as long as we do not spend too long on the pre-growth. Every plant food is different, but all are based on nitrogen, phosphorous and potash (potassium). Nitrogen and potash are the most useful for growth, and a phosphorous and potash mix is the most useful during blooming. A good bloom feed therefore contains plenty of phosphorus and potash, and a small amount of nitrogen.

Once again, choose the special cannabis feeds since every plant food is different and it is best in the beginning to stick to using only one feed supplement. By working straight away with cannabis plant food you will get a better feel for plant nutrition - and better future crops - than by starting out with domestic plant food or suchlike, and then switching to cannabis plant food later.

So now we have covered the most important issues: good soil, light, seed, ventilation and air circulation. This is all we need, or all that we have to worry about, to grow good cannabis. It is not so much and not very hard. The only drawback is the capital outlay for your equipment – an investment of about 500 euros. Not so expensive, but not exactly cheap either. The lamp in particular and the vacuum extractor account for the main part of it.

Still want to grow your own cannabis? Stay tuned.

Growing for Dummies Part 2

Readers who have already got their hands on the previous issue may already have read what I consider to be the essentials you need to begin growing cannabis. The first step towards setting to work growing is therefore getting your hands on these essentials. Take your time in looking around, compare prices at various shops on a range of products, composts, seeds, lamps, and suchlike, before slapping down your wad. Each in its own time, and make the right choice for yourself. A respectable grow shop will not try and shove endless potions and gizmos on you if it's your first growing experience, so make sure you advise them of your position.

In this issue we will be looking a little deeper into general terms used in growing with some explanation of words and phrases from the growing world.

Growing and Blooming

The growth of a cannabis plant depends on the number of hours of light it gets each day. The more hours light, the stronger the plant will grow. The most-used light period in cannabis growing is 18 hours light per day and 6 hours night. This corresponds to the 21st June, the longest day of the year, and a sunny one at that. We kided the plant that it is the always the most lovely and longest day of the year.

But you can just as well give your plants 19 hours, 20 hours - right up to 24 hours light per day. With a 24-hour light period your lamps are burning continuously, of course. But if you give the plants less than 18 hours light you increase the chance that the plant will start to bloom. Some varieties bloom when given 15-16 hours light.

Whenever we talk about "putting the plant into bloom" we are referring to the practice of putting the lamps on a timer set for 12 hours light and 12 hours night. This is the optimal period for blooming. If you give her more hours dark, then the plant will come in to bloom more quickly, but the yield will be less, because you have convinced her that winter is just around the corner. This is sometimes worth doing at the end of your bloom period to tip the plants into a 'harvest-ready' state a little earlier.

Why just 12 hours? Because the plant needs light in order to develop its buds and make its THC. The more light, the more bud growth and THC production. The perfect boundary therefore is 12 hours, so that the plant can bloom well, while developing a good, THC-rich bud with a decent yield as it does so.

Now I can hear you thinking: 'then I'll just give the plant even more light!' But this will simply prolong the blooming period without adding anything to the size or potency of your crop. The length of the blooming period is dependent on the plant variety and can be anywhere between 5-16 weeks. The most common varieties though all bloom after 8-10 weeks.

Difference between male and female cannabis plants and hermaphrodites

The female cannabis plant is very easy to recognise from her production of little white hairs. The first white hairs are found in the 'armpits' of the plant, where two of them spring from one pistil. The pistil is the place on the plant where the leaf is attached to the main stem and from where a side branch sprouts.

The male plant, by contrast, makes no white hairs and is therefore easy to tell from the female plant. The male plant has little balls that always appear in groups that hang off the plant by a thread. When these balls pop open after a lengthy period of blooming,



Here you can see clearly the THC crystals on a bud. Pressed THC crystals are the ingredient for hashish.



This is how you can see them, using a magnifier. The more glistering the bud, the better the quality.

then banana-shaped pieces become visible. Out of these comes pollen that can fertilise your female plants.

At the very beginning of blooming, the male balls and the female pistils look similar because they are only a millimetre or so big, but by looking carefully you will be able to see that a male ball grows away from the main stem, hangs on a thread and multiplies itself to form several balls. A female pistil stays firmly close to the main stem until, at a particular moment once it is large enough, the two white hairs emerge. So if you see in one pistil two balls growing then the chance is already large that you are looking at a male specimen.

In this way you can determine at quite an early stage of blooming which are the males and remove them to leave more room and resources for the females to develop. Hermaphrodites are double-sexed plants, having both male and female characteristics. Within this sort we have various types. Some hermaphrodites are 90% male and 10% female, others are 90% female and 10% male, or 50% male-female. In the case of those that are 90% female hermaphrodites, we can still simply remove the male flowers and in this way still develop harvestable, unfertilised - and therefore seedless - buds. The pollen these hermaphrodites produce will for the most part produce female seeds.

How are buds created and what are the smokeable parts of the plant?

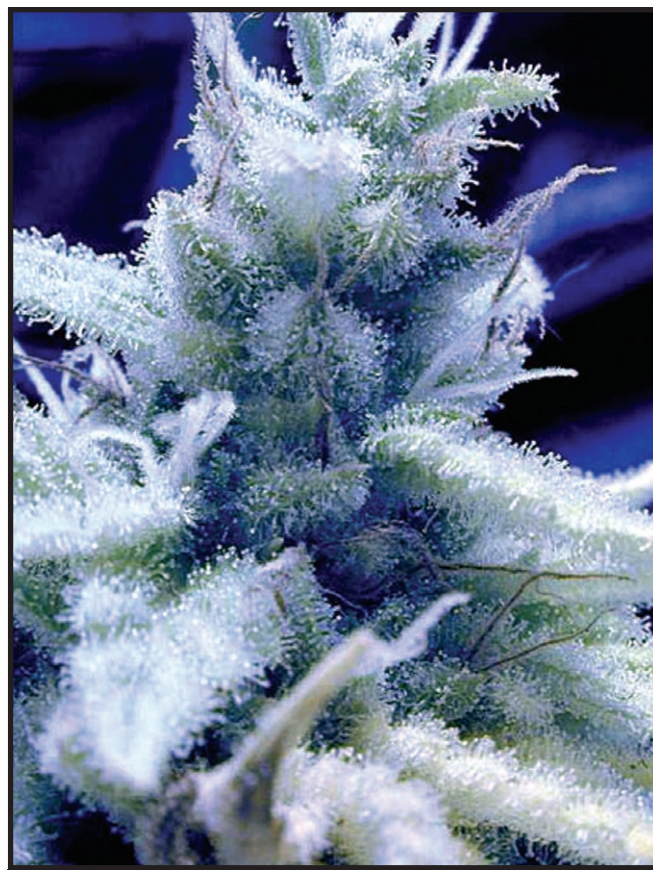
In order to understand how a bud is produced on the plant, from flower to smokeable product, you really need to see it with your own eyes. A mere description of how a female plant manufactures a bud will make many people none the wiser. As you can see, the female plant produces many little white hairs that emerge from a tiny budlet, and the more advanced the blooming proceeds the more these buds will swell up and become bigger.

In many cases the buds will eventually grow into each other, making it look as if there is just one enormous bud. Eventually the buds will stop growing in size – at the end of the blooming process – and these white hairs will take on a colour. When this has happened for 80% of the plant's buds then it is time to harvest the plant.

The only bits of the cannabis plant that are smokeable are the buds. The cultivated buds are dried out in a dark, cool (15-20 degrees Celsius) space where they can quietly and slowly undergo the drying process, and at the same time the 'conversion' process that produces the substances that give a 'high'. There is little point in fast-drying your buds, since the real high you get from smoking cannabis needs some time to mature during the drying process. The leafage trimmed off from around the bud is smokeable, but does not taste as nice as the buds themselves. You're better off making hashish out of this, but there'll be more about this in future editions

Difference between hash and weed

As you should know by now, weed is the dried buds of the female cannabis plant. Only the females can produce potent weed. Hashish on the other hand is the collected crystals that are found on the buds, leaves and stem of the plant. Since a photo says more than a thousand difficult words, you can probably better see for yourself how many crystals there are to be



Some mothers do have 'm: this plant's a Crystal Galore.

found on a bud of cannabis. The transparent little balls you see under magnification are the crystals I mean, and you can find them on small stalks. When the cannabis plant is ripe these crystals take on an amber-to-gold coloration. By drying out the buds and leaves of the plant the crystals easily come loose from the vegetation, especially once we stick this leafage in a pollinator. This is a square box with a drum inside it – like a washing machine, only with a round sieve. The drum turns round and the crystals are shaken loose as a result of the churning. They fall through the sieve whereupon we can scrape them together into one pile, which we call skuff, or unpressed hashish. We can press this hash powder into a lovely block, as you may have seen for sale.

Hashish is thus the collection of the THC crystals that are found on the cannabis plant and that are not visible to the naked eye. It is a pure concentration and therefore gives a more energetic, clearer high. If you roll a joint with a bud you will notice that your fingers become covered with a gold-coloured powder from break-

ing open the bud and crumbling it – this powder is the crystals I've been talking about.

Indoor or outdoor growing?

There's a huge amount to be said on this topic and it should be stated that both have their qualities. Outdoors, you can squeeze three harvests in between spring and winter. Except that you are dependent on the weather gods, and so there are very few certainties to rely on when growing outdoors. A lot can go wrong, and after months of slog you can be left with a few measly buds to harvest. Most unwelcome.

The advantage of growing outdoors is that it costs you next to nothing. You just need a good patch of soil or a nice big pot in which to put a seed or clone, which will grow into a female tree that will give you several hundred grams of bud. Weather permitting...

A clone is a sliced-off piece of branch that has been stimulated to produce roots. Outdoor growing is a great way for the beginner to get to know the



The white hairs of the female plant are turning brownish. Harvest time is around the corner!



Female flowers

cannabis plant and her feeding wishes. The growing period outside begins in early April and goes on 'til mid-August, so if you screw up a plant you can simply germinate another one.

By starting with growing outdoors you will build up a wealth of knowledge that will serve you later if and when you start to grow indoors. The great outdoors is in short the ideal grow room for beginners, who will be enjoy the many surprises they will encounter as they help their plants to thrive. Especially if you plant your babies in solid earth, when you will have little else to except sit around on your lazy butt and wait for them to ripen for harvest

With indoor growing, *you* are Mother Nature herself and you must therefore take control of all aspects of growth, from ensuring air throughput and ventilation, air moisture levels, and so on.

Growing indoors is a little safer than growing outdoors, given that the plants are safely hidden away inside. Curious neighbours can easily spot your plants growing outdoors and cause some major hassle.

Indoors, you can get up to four, five or even six harvests per year, realised dependent on the length of the growing period of the particular variety you're growing. You are not confined by the seasons and can therefore choose yourself when you want to start a crop. You have complete freedom with indoor growing. You can grow any variety at any time.

On the other hand, you have to pay much more attention to your plants with indoor growing. It is a bit more work – though pleasant work of course. Also you need to make a starting investment in order to acquire all the essentials. You have to check your plantation every day and give feed water whenever the plants need it. If you choose to grow indoors you are also choosing to spend a portion of your free time on the activity. If you think you can just bung some plants in just like that and when you feel like it pop your head round the corner and take a quick shuftly at them, you're going to quickly find that you're deluding yourself.

But since you can simply control most of the climatic factors you can continuously be working towards a maximum yield of top quality weed. You can control the temperature by letting the air pumps operate at a certain level, the optimum

air moisture content can be reached by installing an air humidifier, and a good air flow by putting one or more ventilators in your grow room.

Indoor as well as outdoor growing can deliver excellent quality weed in outstanding quantities. Depending on your own possibilities and desires you should make the choice that suits you best.

pH and EC

The pH-value is the number that indicates the acidity of the soil. The pH-scale runs from 1 to 14. A solution with a pH between 1 and 7 is called 'acid', a pH of 7 is known as 'neutral', and between 7 and 14 we talk of 'alkali'. The lower the pH, the more acidic the solution is. When the pH is too high or too low the plants

cannot take up some of their essential foodstuffs. That will lead to deficiency sicknesses. A good pH lies between 5.6 and 6.6. With a pH in this range, the cannabis plants can best extract nutrients from the growing medium.

The pH also influences the (bacterial) soil life, and an active soil life increases the fertility of the soil, which makes for healthier, stronger plants. By measuring the feed water with a pH meter we can acidify it down to the correct value. Most tap water has a pH of around 7.0, so we have to add a little pH-acid to it to lower the pH to, say, 6.3.

We either do this for the whole grow or not at all. Once you have begun to regulate the pH you must continue to do so. Even without a pH meter you can get excellent yields, but when you want to achieve that bit extra, the right pH will ensure a better growth and bloom. The pH is more important than the EC, so if you have to choose, plump for a pH meter first. The pH of soil lies around 6.3 because the bacterial life can fully develop, and be advised that the pH of coconut fibre is around 6.0.

EC is the measure of conductivity of a solution. The conductivity increases the more salts are present in a solution. Fertilisers are nothing more than salts. The more fertiliser you add to your water, the higher the EC it will read. EC is therefore a measure of the total concentration of fertilisers in the water that is given to the plant.

Through the entire growing process, the EC lies between 1.2 and 2.8. One begins with a low concentration of feedstuffs around 1.2 – and this is raised during the growing period to a maximum of 2.8. If you should venture into higher concentrations, then the chances of burning the roots from too high a dose is large. So just stick your EC meter in your water vat, add nutrients until the desired EC reading, and Bob's your uncle.



The balls of the male plant are clearly visible.



Male plant

Growing for Dummies Part 3

This time around you're finally going to learn what the differences organic and hydroponically grown cannabis are, plus I'll be giving you some insight into the art of clone making.

Organic or hydro?

'Bio' or organic growing is growing in soil using only natural fertilisers. Everyone knows that organically-grown produce is of high quality, but it is also healthier too. By using as much high quality organic fertilisers and soil mixes as possible you get the most pure end-product possible. Everything that you feed the plant finds its way by one route or another into the buds

By growing organically the taste of the buds is influenced - as well as the effect, which is just that little bit extra. It is also the simplest and cheapest way of growing.

Soil works as a buffer with which your mistakes in feeding are more easily forgiven. You really have to try your best to mess things up to go wrong growing in earth. Even beginners can achieve top harvests growing in nature's intended medium.

Coconut fibre (or 'coco') is an outstanding medium that is very user-friendly. You do need to use more nutrients because coco is nutrient-poor. With a good organic soil mix all you need to add during two weeks of growing and eight months blossoming is a bit of water. This is because this sort of soil is chock-a-block with food. This makes it even easier for the beginner-level grower - to the point that he does not even have to add extra nutrients and so does not run the risk of over-fertilising. In very favourable cases, the buds blossom so well that it is well worth giving them bloom feed so that the buds can become even bigger and harder.

Hydro or hydroponic growing is growing in a water medium with nutrients added to it, or with an automatic irrigation system. Thanks to the greater quantities

of oxygen that are brought to the roots as a result, the plant grows at a very fast rate. Much quicker than in soil.

But you do have to invest more in your kit if you want to grow hydroponically: special pipes, connectors and suchlike need to be bought. Also you have to fully control the pH and EC yourself, so there is less room for mistakes than there is growing in soil. You can rapidly fix things that have gone wrong with your plants, but things can go wrong quickly enough to

The advantage of growing from seeds is that you have a fantastic range on offer from which to choose – thousands of varieties of cannabis in fact.

lose them all too.

An experienced hydro grower can achieve huge harvests. An automatic irrigation system ensures that at pre-set times the plants receive feed water and everything is pumped through the system. Plants love regularity and given it via an automatic irrigation system, they will reward you with a high yield. Such a system can also be used when growing in soil. A perfect combination of bio and hydro is also possible.

Thanks to the greater chances of success growing in soil, I advise you to start there. Once you've got some experience under your belt, by all means give hydro a whirl. There are currently so many systems on the market that you should take an efficient medium such as soil to start with and then maybe at the same time try out, on a small scale, other systems. Anyone who runs into problems during a crop can always fall back on growing in soil. I knew a hydro grower who after several power outages decided to go back to growing in soil so as to be less dependent on electrical apparatus. Think before you start!

Clones or seeds?

Clones are genetically-identical copies of the plant from which the clone was taken. Because it is important when growing cannabis that you only have females in your garden, it is mostly female clones that are made. The clone will possess all the attributes of the plant from which it was taken – which is commonly called the 'mother' plant. A mother plant is a female plant that is kept in its 'growth' stage and from which clones are taken in order to stock your garden with identical copies of a known, good quality plant. Being identical, the clones should all be ready to harvest at the same time, grow and bloom

just as strongly as each other and have very similar growing patterns and quality of bud.

A frequently asked question is whether one should start out with clones or seeds. Both have their advantages and disadvantages. Growing from seed takes a bit longer than if you grow with clones. The seeds must be germinated, which takes from a few days to a week, and some seeds will fail to germinate or only sprout once they have been planted. Thanks to this there is a chance that you will lose significant numbers of plants over the course of a growing career unless you master the art of seed germination well.

After this we have to let the seedlings grow for up to two weeks, but mostly plants from seeds are given up to a month or even more of 'pre-growing'. This long growing period makes for a significantly more expensive electricity bill because the growing stage needs more energy than the blooming period. In the blooming period we can let the lamps burn for a good part of their 12-hours a day during the hours of night, which is a much cheaper source of power than the peak daytime rate.

Seed plants are young plants compared to clones, since if you take a clone from a six month old plant then the clone is still six months old, and a seed plant of six weeks old remains six weeks old. It is important to note here that a cannabis plant is only fully developed and able to give her maximum yield once she has reached six months in age.

The advantage of growing from seeds is that you have a fantastic range on offer from which to choose – thousands of varieties of cannabis in fact. So you are not limited to using the same clones time and again or the same varieties. Seeds can be stored for a long time while clones require quite a bit of effort just to be kept alive. In fact, clones need to be kept in growth under a grow lamp.

Every seed is different and so each plant that is grown from seed is too, with the result that you get a range of plants if you grow from seed, even if they are of the same variety. Thus one will grow more strongly, or produce bigger buds, bloom for longer or stay short and compact. The result is you get a garden full of various quality plants. One plant might deliver really tasty buds while the other produces a huge amount of THC but does not taste as good when smoked. If you plump for diversity, then seeds are outstanding, but if you crave uniformity in your growing, then clones will be more to your liking.

It's important that you don't go cloning just any old plant too. First you've got to find a good mother plant candidate. A plant with the special combination of characteristics you personally want to see, such as taste, potency, growth pattern or blooming period. The best plant in your garden, in other words. The great advantage of clones is the uniformity with which they grow. The plants will reach about the same height, which in turn ensures that they can all make the best use of the light from the lamps you're

using. Also, they will produce buds with the same taste and high. This means you have more certainty with clones because you know in advance what you can expect. What's more, clones only need a few days to a couple of weeks' growth, so the growing period can be reduced by a considerable amount, which in turn allows you to fit in more harvests a year or simply get on

more quickly with the blooming and harvest.

The most important thing of all is that you only get females! With seed plants you will have to identify and remove all males during the growth phase. With a bit of bad luck you can end up losing a significant number of plants in this way. This lost space could easily have been

filled with productive females, and that's why when push comes to shove I give preference to clones as the best starting point.

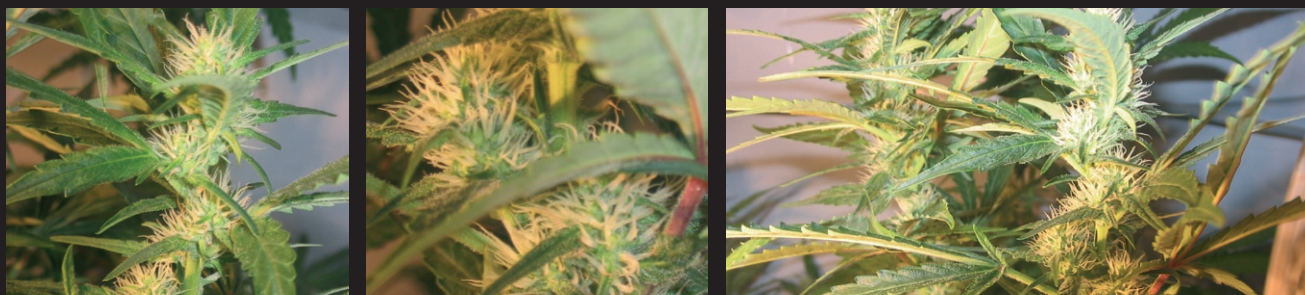
Seed plants on the other hand do make the best mother plants, thanks to the greater range of variation among the plants giving you a better chance of coming up with at least one that matches your wishes. So you

can perhaps best start off with growing as many seed plants as you can and then choosing the best from among them to proceed to bloom with. From these plants you can then choose a mother from which to clone a whole garden's worth of plants. The clone from a seed plant will also generate a bigger yield until she is six months old and reaches her limit.

How buds are produced, from start to finish (Variety: Nlx)



After a few weeks of heavy flowering, the plants are calming down and conserving their energy for producing the buds. White hairs can be seen everywhere.



Around the fourth week the THC production gradually starts and crystals start forming on the leaves and buds. The buds are beginning to swell, forming independent small groups and the white hairs are evident in large numbers.



In the 5th – 7th week of flowering the buds start growing into clusters. The heads are gradually taking shape and are becoming fatter and thicker. Within the next few weeks, they can double in size and then double again, gaining a lot of weight as they grow.



The many individual buds have grown together to form heads and will spend the final two weeks of flowering gaining in weight and substance. The THC production is in full flow and the heads are covered in resin. The white hairs have transformed into a splendid head.



The final result of two months of flowering – a top quality head covered in a thick layer of THC!

Growing for Dummies Part 4

How to build your own growing space

Once the required knowledge and materials have been gathered together, we're ready to get down to the business of sorting out our growing space as optimally as possible for maintaining a favourable climate. A grow space can come in many shapes and sizes, but there are a number of essential points that must be adhered to whatever the eventual format of your space.

Light

For a start, we need to ensure that the space is made completely light-proof. In order to bloom to its peak the cannabis plant needs 12 hours of undisturbed night and 12 hours light. Disrupting the 12-hour night period leads to lower yields or even completely failed harvests. That's why you should go stand in your space if this is possible and take a look to make sure that no light is creeping in. If there is, then you can get a special light-proof tape that will blot out the holes and cracks. A grow space that is not light-proof can easily mess up your harvest because the plants will become confused. One of the most easily preventable things that can happen is the creation of male flowers on the female

plants thanks to the stress they have been exposed to. In no time at all just a few male flowers can fertilise the whole female planting, with the result that you end up with buds full of seeds. A good grower always checks his plants so that he can remove any male flowers in good time. It takes a few weeks before a male flower can disperse active pollen. It also happens frequently that the plants find it difficult to come into bloom when beams of light are allowed to get in and they will as a result produce a very meagre crop. Above all watch out that any electrical appliances left in the grow space or destined to be left in there, because these usually have tiny lamps that give off a lot of light that can disturb the night's sleep of your plants. Stick a piece of light-proof tape over any lamps and lights.

Air tight

Once our plants are well and truly in bloom and are producing gorgeous buds, the development of their smell also begins to at a pace. Our plants will begin to spread a fragrant and somewhat powerful odour, which makes it vitally important that our grow space is also made fully airtight. The grow space must have a

minimum of cracks or holes in it from which the marihuana odour can escape, and preferably absolutely none. Once your plants begin to smell then you will probably be visiting your crop so regularly you will get quite used to it. In this way you can become convinced that your plants are making little to no smell, when in fact neighbours or fellow inhabitants are suffering from the stench. One other important factor in addition to the safety aspects of having an airtight space is the control of the climate. Creating a good climate is enormously important if you want to get the very best from your plants. So make sure when you are setting up your space that unwanted smells can neither get out nor drafts find their way in. A third important point is that any undesirable creatures and vermin cannot find their way in to your space. A good grow space is in effect a kind of quarantine cell in which nothing gets in or out without your say so.

Climate

Once we have the previously described points firmly sorted out then we have arrived at our eventual goal of setting up the grow space, creating an ideal

climate in which our plants can develop into real giants, growing and blooming at unheard of speeds. Because the climate has to be constant and even throughout your grow space we need a ventilator (or more than one) to make sure there is a good movement of air. The plants will also grow thicker and stronger in the stem and will at the end yield more than plants raised without a ventilator. If you have a good budget at your disposal then you might want to invest in a thermostat, hygostat or a thermo-hygostat. You can connect up the thermostat to the exhaust ventilator, which will allow you to set your desired maximum temperature - say, 28 degrees - for your space. If the temperature rises above that, then exhaust ventilator kicks in to bring it back to 28 degrees. The hygostat can also be coupled to the exhaust ventilator to make sure that the required air moisture content is maintained. If your space becomes too humid then air is sucked out until the right level is reached. With a dimmer switch you can regulate the speed at which the ventilator operates, so you can run it continuously at a slow speed to keep fresh air pumping into your space.



We make sure the walls are reflecting white and make a collection tray to catch any excess water. We make a wooden construction that is placed about 15-20 cm off the ground.



After having fixed black-white foil on the walls, we also attach the same black-white foil to our construction. In doing this we've made a simple collection tray. Watch out for any sharp objects that might create holes in it.

In order to regulate the air moisture content we will need an air humidifier. They are not too expensive and well worth the investment. The nice thing about them is that they usually come with a built-in hygrometer so that you only have to punch in the required air moisture and the humidifier takes care of keeping it there. Especially during the growth period this works wonders. A plant can double its rate of growth in humid air, and this will help reduce the time spent in the growing phase. Warming a large room or a small growing space will make a world of difference. Letting the air moisture rise during the first weeks is easy in a small space, but try it some time in a whole room. It's just as easy in a large space but then you will need a whole load of expensive equipment and as a beginner you're better off trying to keep your set up low budget. Now you can just as well throw some decent money at getting your space well insulated; each to his own.

We also need to make sure that on one side of the space, down at the bottom, there are holes for air to enter. These holes are to let new CO₂-rich air get in. On the other side of the space, right at the top, is where we place a suction pump. This will suck up and remove the warm air. Warm air rises, which is why we place the pump at the uppermost point of the space, or at least the highest possible place. By fitting a carbon filter to the suction pump we can remove at the same time any strong odours. A carbon filter and vacuum pump go together hand in hand and are absolutely essential in a garden set up such as we are building. A filter will suffice for around five harvests, or about a year. The pump must be of appropriate capacity for the size of the grow space, so first you have to calculate the volume of that space. Casting your minds back to school, we know that multiplying length x width x height will give you the volume of your space. Always take a pump with a slightly larger capacity than the actual volume of your space. During the hot summer months this can make a big difference in keeping your growing space at a reasonable temperature. Consequently, choose a larger capacity - for



It is important to have entry holes for fresh air to get in. Preferably down at the bottom. The fresh air then circulates over all the plants inside. From the growth period through the blooming and beyond.

example, for a 500 m³ space we might choose a ventilator suitable for a 750 -1000 m³ space. The great advantage of this is that during the cooler winter months we can let it run gently and using little energy, the during the hot summer months we can let the throttle out and comfortably keep the temperature below 30 degrees. A large ventilator running at half speed makes a lot less noise than a smaller ventilator running flat out. Also, should you wish to increase the size of your grow space in the future then there is no need to buy a new ventilator. You can never buy a ventilator that's too large, only one that is too small. It makes little sense to keep a ventilator running flat out if it can keep the space replenished with new air at half speed just as well. By placing the air input holes at the bottom of the space and the exhaust at the top we create an air stream that will carry the new, enriched air from below, right up to the top on the other side of the space, flowing over the plants as it goes. This is great for the plants, which can enjoy the fresh air to the max before it is

depleted of CO₂, sucked away and removed from the space.

In order to keep pests outside we can use a Nylon stocking or special socks placed over the air input holes so nothing can fly or creep in, which will help you avoid an infestation later. Certainly do not forget either that no light must be allowed to get in through these holes to reach the space. PVC tubes with a bend in them work well to let air in but keep light out.

There are thousands of ways of making sure there is a good air supply to your space; they're all great, but there are two main rules to bear in mind: by preference, air in at the bottom, and keep it light-proof. In a situation where you simply cannot make a hole for the pump anywhere then the best solution is to buy a cheap door and make a hole in that for air extraction. This is a frequently used method by professional growers.

Square metre

That's enough wittering on; the real work is about to start:

the actual building of the grow space. You do not need much for it: just a single square meter, and everyone has that somewhere, whether in the attic, cellar or a spare room. What we need is: a staple gun for use on wood, a saw, black-white plastic, a drill, screws, scissors, a few wooden planks - and a square metre.

What we are going to build is a screen around the growing space. Let's suppose you do use a single meter of a large room, then it is handy to partition off the grow space from the rest of the room so this can be used for something else. If you don't do this then the whole room will stink later when the plants are blooming. The big advantage of building a screen is that the light from your lamp will be utilised to the full. Light is weight - that is to say, the amount of light a plant gets will to a large extent determine the eventual yield. By building a screen around the square meter that is then covered in white reflective plastic, you keep the light inside the growing space and on your plants. If you don't do this then the light will scatter itself all over the room and so you will lose a good proportion of it. Making sure that the sides around your plants are of reflective white is the cheapest way of raising your yield. It don't get any cheaper or easier. Mylar is the best stuff currently on the market for reflecting light back on your plants. It is a little more expensive than black-white plastic but reflects some 99% of the light that your lamp gives off back at your plants. Mylar needs to be hung as straight as possible to be best made use of. It's very important for the set up of your growing space to make sure it has reflective walls, whether these are white walls or hung plastic makes no difference.

The construction of a screen is a half-hour's work once you've got the necessary materials mentioned to hand. I cut eight pieces of wood about 1.2 m long, and six pieces of about 1.70 m. I arrive at this length (1.70 m) as a result of my cellar ceiling being so high. The length you choose is best when a little shorter than the height of the room or space in which the

growing space is to be situated. If your room is 2 metres high, then cut eight lengths of about 1.97cm. In other words, subtract a few centimetres from the actual height of the room.

Step 1 is pretty simple: we make a wooden frame by attaching two pieces of 1.2 m wide to two pieces (in my case) of 1.70 m in height. This is done real fast with a machine drill on which we place a piece the two bits that need fixing together, drilling a hole and screwing them together. Once we have our wooden frame securely put together we can stretch the black-white plastic tightly over it. This is done most smoothly using a stapler to staple the plastic in place. Excess plastic can be trimmed away once it's attached.

So now we have our first reflecting screen. Onto this we need to attach one more screen in the same way as we just did the previous two, only using one piece of the 1.70 m wooden struts less. We just use the 1.70 m plank on the screen we've just made and attach to that two pieces of 1.20 m and one of 1.70 m. Stretch and staple plastic over it and again, trim off the excess. Now we have two pieces of screen attached to each other. In this way we don't make separate loose hanging screens. On the other side we do the same and make a screen there too, attaching it to the already existing wooden strut of the first screen. The result is that we now have three screens firmly attached to each other and with reflecting surfaces. This construction you now place in the chosen square meter that's your grow space.

As we've already noticed, the screens are a little bigger than the growing space. This is so that we still have room for the ventilator and suchlike to fit in. To finish off, we once more make a single independent screen with two pieces of the 1.20 m wood and two of the 1.70 m planks. The individual, loose hanging screen is the entrance door to the growing space. We put this against the open side of the three screen box, and our grow space is fully sealed off. Now all you have to do is move the screen door to inspect and care for your plants.



Once all the walls have been attached to each other I choose to create an additional collection tray in order to keep the whole thing clean and tidy and thereby lessen the chances of disease.

Now the light from the lamp stays in this way in the growing space and you will notice the difference this makes later when you come to harvest your plants. The smell of the plants is also kept inside and can be easily removed by filtered pump, so the rest of the space in the room you can put to some other use. Really creative growers of course can make a real jewel of a grow space for themselves.

Collection rack

A grow space should be easy to keep tidy, and that's why I choose to build in a sort of 'collection rack' into which the plant pots will be placed. To do this we build a frame 1.10 m wide, with a length of your choice, and a height of 15 cm. This is lined with the same black-white plastic (ensuring there are no holes in it now or later on). The advantage of such a rack is that it just makes for cleaner growing and this gives diseases less of a chance of gaining a foothold. All rubbish such as soil, dead leaves and splashed water end

Also, if you have to flush your crop such a collection rack will prove its worth. 'Flushing' is the removal of excess nutrient or fertilizer from out of the medium (plant pot). By giving the plants way too much pure water the nutrient residues are washed out, as are the salts that accumulate from over-fertilizing (salts are found in fertilizer). Some growers choose simply to flush as a matter of course every two weeks in order to keep their medium as healthy as possible. With a collection rack you can flush the plants without any problem and without leaving a wet mess behind in your space. Another advantage is that when growing in soil you can let the whole rack fill with feed water and leave the plants to take what nutrients they need from it. This is the same effect as a plant pot standing in a tray. You have in effect made an enormous tray, in fact. The good thing about this is that the plants will be more difficult to over-fertilize because the plants themselves decide how much they are going to take up. If you need to be away for 3-4 days then you can just leave the collection rack topped up and the plants have enough food for those few days. The rack then serves as an automatic watering system. Later you can easily switch up to an ebb and flood hydro system.

So to recap: our aim is to make a light-proof, airtight grow space in which the fresh, CO₂-rich air comes in at the bottom of one side of the space, circulates up and out the other side. A sufficiently large suction pump ensures the air circulates and ventilators mix the fresh, incoming air with the air warmed by the lamp so that the temperature is the same throughout the space. Just add reflecting walls to maximise the effect of the light and a collection rack for keeping everything tidy, and Bob's your uncle. The grow space is now ready for planting!



To get the most out of our square meter, we build a reflecting screen around it. In this way we can better control the climate and create a completely light-proof enclosure.

up straight in this rack. Once the harvest is over it is very simple to just sweep all this together and clear it away and in no time everything is spick and span for the next planting. If you don't use a collection rack then, as many growers do not, then in no time at all your space will be transformed into a space or room with a bit of dirt everywhere you look.

Growing *for Dummies* Part 5

Germination

Now that we have finally got our growing space ship-shape, we're ready for the real work. Last time we went through the most important issues. After much research into the various varieties of cannabis, you have finally settled on one that suits you. Your space is made fire-safe and light-proof, and now only awaits its payload of green plants.

just 12-36 hours of moisture being given to the seed the root will have popped out.

Kitchen paper method

One of the most common methods of germinating seeds is the wet kitchen paper method and its variations. In this, we lay the seeds on a damp, absorbent piece of paper or cotton wool.



Time then to whip out our packages of seeds and get to work. But how do you best set to work, to get these tiny, fragile seeds to grow without problems into small plants? That there are many different methods you already know, as you also know that everyone has their own favourite particular method. What do seeds need to germinate successfully? The three keywords are warmth, moisture and darkness. When we give moisture to the seed then the tiny root that is curled up inside the seed start growing and sets off in search of more moisture. Because this root rapidly increases in size, the case or hull of the seed soon breaks open. The first to appear is the fragile little root which may be small but has a strong ambition to grow as fast as possible into a fine cannabis tree. The growing power of a cannabis seed cannot be underestimated. Seeds have the ability to develop very rapidly; within

Thanks to the moisture absorbency of the kitchen paper it is pretty easy to make sure that the seeds receive a continuous supply of moisture. If the kitchen paper is too dry you just have to add a drop more to make it moist once again almost immediately. It is important to keep the seeds moist but not wet. When you keep the seeds wet, then the rootlet will not go off in search of more water, and so grow more slowly, since it has all the water it needs right where it is, thanks. By keeping it too dry you run the risk of killing the root. Getting it just right is difficult to achieve with this method since the kitchen paper is always either too wet or too dry. But it does work outstandingly well, though some beginners do manage to kill a few seeds in the process.

Direct in medium

A second method of germinating is to get the seed straight

into growing in its intended medium, having first soaked it in water laced with root stimulator for a few hours. After this soaking, pop the seed straight into its soil, coco or whatever. We plant the seed 5-10 millimetres deep in the medium. By not planting the seed too deep it can quickly emerge into the light, and so begin to grow. Another good reason why we don't plant the seed deeper is that any deeper and it risks remaining wet for too

is to poke a small hole with your finger. Make this wet. Quickly lay your seed into the hole. Because the soil is nice and wet it is safe to press the seed gently into the soil without any problem. Cover with a fine layer of soil and add again a very small amount of water (10 ml). So that the seed can anchor itself, don't give too heavy a slurp of water; if you do, you risk washing the seed too deep and again exposing it to the risk of rotting.

Stone wool blocks

Don't forget that with the methods used above the temperature plays a very important role in the germination success. An ideal temperature is for it to remain constantly between 20-25 degrees. Try to find a way to keep your seeds constantly above 20 degrees then. You can do this by using a warming mat, which is a small mat that you plug into the mains and which keeps itself at a constant 20-22 degrees. This is a cheap and effective way of keeping your seeds at the right temperature. I prefer to use a warmer such as the Bionair placed in a small cupboard. This warmer can be programmed for example to stay at 25 degrees, and because we have placed it inside a cupboard it has to do a lot less work to keep your seeds at that temperature. Inside your cupboard you will create a mini-tropical climate.

Another method I still use because it so effective and easy, is the stone wool block method. We put the seeds in



long and the seed may start to rot. The upper surface of the medium dries out the quickest and so we need to take care to keep it moist. 'Moist' here means that we wait until the upper layer is drying out, and once this is happening, give it more water (and if using it, root stimulator). In other words, don't give the medium more water if it is still wet. If you do, you will keep the medium wet rather than moist and give your seeds a good chance of rotting. Some people

The art of growing consists mostly of the time you spend giving attention to your plants, and thus involves spending time with them.

choose this method because it causes a minimum of stress to the seeds and the rootlet can dive straight into the medium and begin developing. Fairly clumsy growers can damage the rootlet during its planting when they are using the kitchen paper method. The best way of planting the germinated seed

to stone wool blocks and soak them once with water laced with root stimulator added. We now stick the wet stone wool blocks with seeds in them in a plastic tray with a lid, one that's also called a dome. Such a tray or dome makes sure that the air moisture content remains high – so there's no

reason to add more water until the seedlings emerge. I put the tray of course in the tropically heated cupboard at the right temperature, which being controlled by the automatic heating needs little-to-nothing more doing for a successful germination. You will see within one-two days, the seeds will germinate. After four days you'll have seedlings of several centimetres in height.

Light

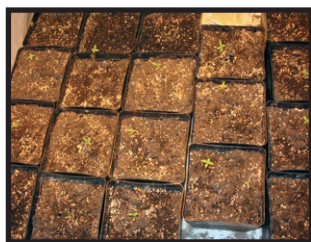
What's important now is to make sure the seedlings get enough light. But it is pitch dark in the cupboard, since the seedlings germinate best in a dark environment, I hear you say. Well, once they have sprung up we need to make sure they get as much light as possible so that they develop as rapidly as possible in cannabis bushes. So remove the seedlings when they get to 4-5 centimetres high from their smaller sister seedlings and plant them in your medium of choice. If you have sown them in stone wool blocks you will find this transplanting easy, and the tender root will remain protected throughout the operation. The stone wool blocks with sprouted seedlings in them can now be placed one by one into your start-up growing space.

A good start is solid gold!

We are now a few days to a week further down the line and thanks to one of the above methods, we have successfully raised a few seedlings. Do not expect a 100% germination of all seeds; they are still living things and sometimes there can well be a few seeds that are duds. Always start with the assumption that this will be so and sow a few extra than you anticipate using. If they all come out, so much the better! The small seedlings will now be trying to develop into gorgeous green ladies as fast as they can. By putting them under HPS lamp(s) they will get all the light they need, and therefore the energy with which to grow speedily.

The first week it will seem as if little is happening, since the plants still have very few leaves and an undeveloped root system. With the passage of

time the plants will grow more leaves and in each case start growing faster and faster. The process is comparable to an old-fashioned diesel train that slowly starts rolling but eventually hits full speed. The leaves of the plant function as solar panels and the more solar panels it has the more energy it can produce and the faster it can increase its growth rate. Such is its efficiency you can almost see a change from day to day, with visible growth. It is very important in this beginning phase to make sure there is sufficient light, warmth and moisture. By keeping the moisture level high the plants can more easily develop leaf cover. We can raise the air moisture level by letting the air extractor pump a little slower, or even leave it off in the first weeks, or we can use an air humidifier. As the plants grow in size they use more and more water and so their need for watering becomes greater. The used water evaporates out of their leaves and



***It is important to keep the seeds moist but not wet.
When you keep the seeds wet, then the rootlet will
not go off in search of more water***



straight into the grow space, so this automatically keeps the air humidity high.

In contrast to growing with clones, we do not need to hang the lamps too high over the plants, as seed-grown plants can handle the intensity of light better than a freshly-cut clone of a female cannabis plant. A seed plant would receive in nature the full strength of the sun on it, and has adapted to find this just lovely. You have probably read all over the place about having to keep your lamps hanging at least 60 centimetres above your plants when they are starting out, but then they were talking about clones and not seed-grown plants.

Feeding

So when do we need to start feeding them? This depends on the medium in which you are growing them. But certainly not in the first few days, whatever the medium. If you're growing in soil, this will have sufficient nutrients in it for at least two weeks. Coco by its very nature contains no nutrients and so after about a week you will need to start giving your plants food. It is very easy to see at what point your plants need food as they will ask for it themselves. After a short period the green leaves will turn a lighter shade of green, which is their way of saying that there is less nutrient left in the medium and now could they have some more please? As a beginner you will probably not notice this subtle hint, and if you wait

too long then you will see the plants start to turn yellow. This really is not serious and nothing to get worked up about. The plant is making it very clear that she has a shortage of nutrients. Most probably a shortage of nitrogen, one of the most important building blocks for a good growth development of the plant. By giving food to the plant you will see the yellowing leaves rapidly return to a healthy green. The shortage has been removed and the plant has replenished her leaves with all the necessary building materials. Depending on how serious a deficit, the return to normal can take a whole day, or just a few hours.

In order that you do not make things any harder for yourself than they need to be, it is best to start your first ever harvest in soil so that you get to know the plant better. Doing so means you do not have to start immediately feeding in the first few weeks, and you have less chance of screwing things up too quickly as a result. The grow period in which the plant now finds itself requires that we have the lamps on for 18 hours with a six hours night sleep. This time schema matches the longest day of the year and normally the sunniest, the 21 June. We allow the plants to think that every day is the longest, sunniest day of the year.

Enjoy your plants

During the first weeks, when your plants are happily developing in their pots or tubs full of earth-mix, there's not a lot to do except enjoy the view. While in the first week you will marvel at how little progress seems to be made, from the second week on you will asking yourself how they can grow so damn quickly. The art of growing consists mostly of the time you spend giving attention to your plants, and thus involves spending time with them. Follow the development of them with care – especially the first time, you do not want to miss how that teeny-tiny little sprout so quickly transforms into a flourishing cannabis bush with the best quality dope you've ever wrapped your lungs around! Home grown Rocks!

Growing for Dummies Part 6

The Growth or Veg phase

A good start is worth gold

The germinated seeds peak out above ground and immediately spring up into small, blade-like green plants. They are still very fragile at this stage, and they look it too. What we are now going to discuss is the growth of this plant. The growth period is an important factor in determining the eventual size of the yield you will get from your plants. A good growth is even more important than the bloom itself.

Putting a plant through pre-growth means that we will keep the plants in their growth (also known as 'veg') period for between one day and several weeks, and we do this by putting the lamp timer on 18/6. This means 18 light and 6 hours night/sleep for the plants. The plant is now equipped to take advantage of the light in full and begin to develop in breadth and height.

The more growth you allow the plant, the more leaves it will develop, and develop them on stronger side-branches, thanks to which growth will accelerate even more. A plant that a week previously had only 10 leaves and now has 25 can naturally grow far quicker thanks to the increase in the amount of light it is able to make use of. So it is that in the beginning of the growth it always goes slowly until the plant has made enough leaves to reach a certain growing speed. At this moment you will quite clearly see that just one day's growing makes an enormous difference, and you will notice that the plants have made great progress with just that single day. More growth means more nutrients to be given, more oxygen needed... To achieve a good growth you have to continually keep all factors under firm control. If at any time there is a deficiency of oxygen in your growing space thanks to too little or no vacuum extraction, then your plants are going to be retarded in their growth potential.

Message of the Mediums

Various mediums (or media) can offer various growing speeds to your plants. The most common are still soil, coco and hydro (growing in water). Each medium has its own qualities, advantages and disadvantages.

Soil only enables a rapid growth as long as it is well aerated and light in structure. Because roots can best develop by growing through light, airy soil, this is what we have to try and give them. The faster the roots grow and spread, the quicker the plant above ground can grow. Roots need oxygen, and hard ground that has been compacted contains less oxygen than a lighter mix. The advantage of using soil is that it contains nutrients and so one does not need to start so early with adding liquid feed. What can be important

and difficult to over-fertilize. It is perhaps even more difficult to over feed it than soil.

Over feeding comes about from an accumulation of salts that are present in all feedstuffs. With the passage of time, if you are using too high a dose of nutrients (being a beginner grower), the plant can not take them up quickly enough any more. The leaves will begin to develop ugly stripes, first visible at the edges where the leaves are expanding in size, then the leaf dries out and dies. To prevent this you have to flush your medium. Flushing is giving extra water so that the accumulated salts are washed out of your medium. If you have a plant with very deep green leaves then this is a sign that there is sufficient nutrient present, and to give it more food at this time could well lead

Nearly all growers use root-stimulating compounds to ensure a powerful growth. As has been the case so far, all the action here again takes place under the soil in the beginning. A small seedling still has very few roots. The idea is that we are going to stimulate the plant to produce as many roots as possible, as fast as possible, in the medium. The most commonly used is liquid root stimulator, something that all the big nutrient making companies tend to have in their range. Root stimulator makes sure that the roots receive a growth impulse. That it works can usually be best noticed when growing in soil. The root stimulator will also make it possible that other plants in your soil mix also begin to grow. So don't be alarmed if you suddenly find a different kind of green poking its head up out of your soil than you expected.

To achieve a good growth you have to continually keep all factors under firm control.

for beginning growers is that this prevents difficulties in the early stages of the growth. A poor start can be disastrous for the future blooming and harvest. Soil or earth is therefore a perfect medium for beginner-level growers and by learning with this you can build up your growing knowledge. Learn to grow well in soil and you can always fall back on it in the future.

Coco is an even more aerated substance to grow in. It is a favourite medium of mine and ensures the plants get an outstanding start thanks to the oxygen-rich coco fibres. Plants that have been growing in a more oxygen-rich medium are stronger and develop more – and more powerful – side branches. The drawback with using coco is that it contains no nutrients; it is food-poor. That is why you have to begin very early with adding liquid nutrient. This could create problems, but coco is very user-friendly

to over-feeding. If you are not sure about it, wait without giving any more nutrients and the plant leaves will turn a lighter shade of green, and then you know it is okay to give it more food. If you leave it too long the leaves will begin to turn yellow.

Growing on hydro gives you the greatest growth speeds as long as you go about it in the right way, thanks to the presence of a wealth of oxygen available to the roots. It is far more work-intensive than growing in soil or on coco. I personally choose coco because it is a good middle way between soil and hydro. You achieve good growth results but do not have to give it too much attention. It must be said that once you have hydro growing off pat, it goes really smoothly. But with hydro you are more dependent on electrical apparatuses, and if these play up or you get a power outage, then you are up the Swannie, or you have to lash out on back-up power.

We generally dilute root stimulator with water, although it is used undiluted for dunking cuttings into to prompt them to root during clone making. We do not use root stimulator together with liquid fertilizer, since this reduces the effectiveness of the stimulator. So in the plant's first few days we need to add root stimulator – do not mix it with any nutrients. In this way we can get off to the optimum start.

There are also friendly (symbiotic) fungi that we can apply to promote good root development. Nova-Star-T from BioNova is a small bag filled with a powder which contains spores of these beneficial moulds, which you mix with water. With this you soak the cutting blocks in which your seeds or clones have been planted. The mould works as a symbiont and needs the plant in order to survive. The plant in turn uses the mould as an 'extra root system'. Wherever

the mould grows the plant can also take up nutrients from. The effect you get is that the plant gets a much stronger and healthier start and has access to much more of the medium's nutrients. Almost all products that have a stimulating effect on roots are useful for the start of the growth period. Your mission if you encounter them is therefore to mollycoddle your roots until they're nice and strong.

The importance of the growth period

With the growth phase you can largely determine the dimensions, shape and yield of your plants. There are various ways of raising cannabis and these are to a large extent dependent on their way of growing. You can put many plants into a square meter; then it is important not to give them much growing time. The plants may not be allowed to get too big or they will suppress each other. The fewer plants you choose to raise, the more growth you can allow them.

Seed plants and clones have different growing preferences. Clones are older plants than seed plants and therefore are already adult and so need less growth before being induced into blooming. A seed plant goes through various stages and becomes mature after about a month of growth. The better you are as a grower the faster you can bring a seed plant to

not necessarily mean you will get a bigger yield from it. It is especially important as a beginner grower to appreciate that a plant undergoes a tremendous rate of development once it is put into bloom and will continue to increase in size for a good three weeks before it reaches its eventual size.

The perfect growth

What is the perfect growth? A perfect growth is when the plants have reached the ideal size once they have been set to bloom, and when all plants can still develop very well without getting in each other's way. The entire square meter therefore is filled by the plants with no gaps left between them, but it is not so full that the plants compete with each other for resources. By allowing them too much growth or using too many plants, all the plants will develop less well. A plant needs space in which to allow her side branches to develop and so increase in girth. If she has not got this then she will increase in height. The drawback with this is that the lowest side branches will be weak and will not develop very heavy buds.

In order to get a good harvest you will have to achieve good bud development in the lower branches as well as up top. Anyone can grow themselves a big head bud; it's something else to get equally good weights off the lower reaches.

If at any time there is a deficiency of oxygen in your growing space thanks to too little or no vacuum extraction, then your plants are going to be retarded in their growth potential

adulthood. This does not only depend on time but also the bulk. If you look at a clone then you'll see that the side branches run step-wise. If you look at an immature seed plant then the side branches are proportionately straight. Once the seed plant has become adult then the side branches will also begin to grow step-wise.

By giving them more or less growth then, you can determine the dimensions of your plants. But remember that simply making a plant bigger does

branches, then they are ready to put into bloom. You can put clones into bloom sooner, since they start out more mature. For the same reason, do not let them get much bigger than 25 cms. Clones are more branchy which means they let less light through to the lowest branches. A plant that is too big will allow little to no light through to the lowest branches, which will therefore not develop buds. Letting your plants grow too big is therefore a waste of time and energy. You are restricted by the power of your lamp and this will ensure a

good, heavy bud development only in the top 20 cms of your plants. The lower you go, the smaller the buds will be. By making sure that you let as much light as possible get through to the lower reaches of your plants you will maximise the development of the buds down there.

Nutrition

During the growth period the plants most need nitrogen and potassium. If your plants become deficient in either of these during the grow period they will turn yellow. If you choose to grow in soil and use a good mix from a grow shop, that will contain enough of these key nutrients for three weeks to a month. The advantage of this is that you do not need to add extra liquid fertilizer until the bloom period. The extra price that you pay for the better soil is therefore worth it. You also save yourself a load of potential problems. Cheap soil mix can quickly lead to deficiencies because there is little nutrient in it that is readily available to our plants. So you have to begin adding liquid fertilizer



An adult plant



An immature plant

But if you can, this is how you get really good harvests from just a few plants.

As a good rule of thumb, eight seed plants given three weeks of pre-growth should fill a single square meter under a 600w lamp and will give a yield of 500 grams. That is approximately 63 grams per plant, a figure that is not exactly super-high. I usually keep an eye on my plants and once they are between 25-50 cms high and have become small adults, with small, strong side

earlier, which is not a problem in itself although some people do manage to over-fertilize, and so it is always better to wait as long as you can before you have to start fertilizing.

Now you cannot avoid making mistakes while growing cannabis. In fact, the more the better. If you learn from your mistakes and know what you did wrong then you won't make the same mistake again. Above all follow the instructions on the bottle and use a millimetre syringe to exactly measure out the quantities you want to add to your feed water. Sufficient nutrition without going overboard will result in wonderful, healthy growth in your plants.

The bigger your plant gets the more fertilizer you will have to give it. So you will notice that if you continue to give the same concentration of nutrients to your plants, at a certain point they will start to develop yellow leaves. The plant is trying to make it absolutely clear that she needs more food. The dose (strength) of your feed water needs to be raised or nutrients should be given more frequently.



The first two weeks growth

After coming up, the seedlings pictured above were planted in Plagron's Royalty Mix. This pre-fertilized soil contains enough nutrients to last for a few weeks. During these first weeks I gave root stimulator to the plants. As time passed the plants began to grow ever faster. As an extra boost, during this growth period I also gave them Alga Groei, a liquid growth feed from Plagron. This is not absolutely vital since there is enough nutrient in the pre-fertilized soil mix, but by

Just so long as the temperature does not fall below 16 degrees then you will not get any significant loss of growth.

giving some extra nutrient I am able to maintain the soil's nutritional value level. If we were to now give no more food then eventually after a few weeks the soil would be worn out and

depleted. If we give regular extra nutrition, we avoid having to suddenly start giving heavy duty fertilizer. Is it clear what I'm driving at here? Naturally, we avoid giving too much food, since this can create to high a risk of over-fertilizing.

Besides applying root stimulator and liquid growth feed, there is actually very little more to do in this growth period. We make sure that the lamp is moved so that it stays between 30-40 cms above the plant. The best way to ensure this is feel with your hand how hot the lamp is burning at leaf level. You place the lamp after a week and a half as close as possible to the plants before they can feel the burning hot, dry air from the lamp. The correct height varies from grow space to grow space and the number of lamps in the space. If you have a good air circulation then you

We keep the air moisture levels during the first weeks as high as possible too because the plants can grow so much faster and make their leaves more easily. A high air moisture content can do wonders, and we can achieve this by turning off the air extraction, or letting it run on a very low setting so that the moist air is not immediately pumped out of the growing space. An air humidifier helps of course too! We aim to keep the temperature between 22-28 degrees Celsius and at night between 18-22 degrees. Just so long as the temperature does not fall below 16 degrees then you will not get any significant loss of growth.

Do not forget to let your lamps do as much of their work as you can at night if you have cheap rate electricity at this time of day, and over the course of your growth you can save a fair bit of cash.

Green plants have now been raised, you can caress their sturdy stems and savour the taste and smell of your future crop already. Now you just need a few more months of patience to practice before you can enjoy your well-earned heavy buds at harvest time.



***Growing for Dummies** Part 7*

Telling your SOG from your SCROG

Before we can switch our attention to the flowering or bloom phase, we have to make sure that we have raised large, healthy ladies during as short a growth or 'veg' period as possible. Their size and health will determine the larger part of our eventual yield.

The idea is that we raise the germinated seedlings during their growth period as quickly as possible into sturdy, vigorous green bushes. To make sure they develop a sturdy stem it is advisable to have a fan running in the grow space. This will ensure an even climate by mixing cool and warmer air, and keep a soft breeze blowing over your plants. It is this that will stimulate the plants to strengthen their stems, and a fatter stem can hold more and heavier buds. You will see the result of using a fan really soon. The plant adapts itself incredibly quickly. Just set up the fan and turn it towards your plants; you will see that they move as they are blown hither and thither.

After just a couple of days, they will not be moving any more; the little plants will be set firmly where they stand, unaffected by the breeze. Positive proof that the plant has quickly taken the steps needed to stiffen up her stem. If you like, you can turn up the intensity of the fan, if it has higher settings. Make the breeze strong enough to once again make the plants sway back and forth. After a while the plants will have reinforced their stems enough to stop the stress from the 'wind' again. The end result is that you get strong, muscle-bound, bush-like plants rather than thin, spindly ones. Making sure you have a good breeze in the veg phase is a very cheap technique of raising your yields.

By growing under lights you can get really massive buds;

heavy enough, in fact, that your plants' side branches risk being not strong enough to support them - and you risk losing some yield. As you will no doubt have sussed by now if you have already had a harvest from your garden, it is usually the plants with the sturdiest stems that produce the most bud, though of course there are always exceptions to this rule.

Feeding time

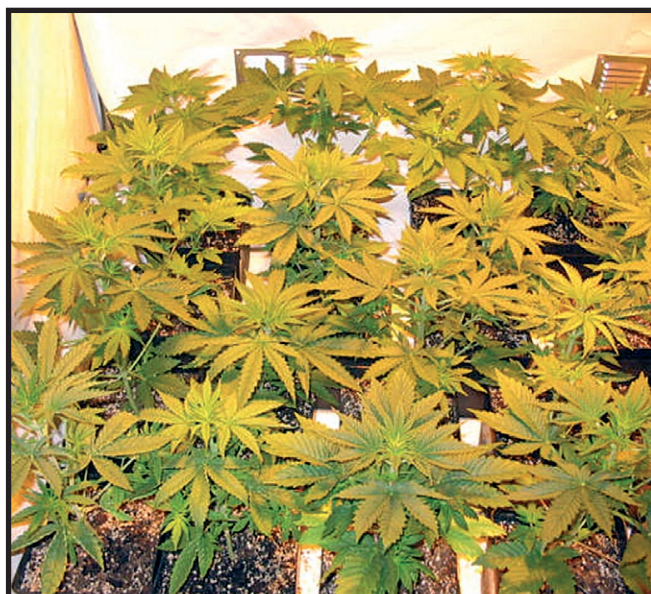
After a little while you will have to begin giving your plants feeds in order to support their rapid growth under lights. The better the quality of earth you are growing in (i.e. the more nutrients it contains), the longer you can wait before having to give them their first supplement. But it is still advisable to give a little nutrient now and again even to plants growing in a heavily pre-fertilised mix. By giving food regularly you ensure that the medium is not suddenly depleted. You are constantly topping up the mix.

In normal circumstances, a good soil mix will need supplementing after about three weeks of growth in it, but with regular addition of nutrients it will take five or six weeks before it is exhausted. This will create fewer problems, since if you just leave your soil mix then you will suddenly have to start adding considerable amounts of liquid nutrient. This is not necessarily a problem, but it can be for beginner growers who are not yet sure how much feeding the plant can handle, and in no time at all you can end up with yellowing plants.

Nutrition is something that you have to gradually build up, as the plant goes through various phases. The small seedling needs little to no extra feeding and you are best off waiting a week and a half before giv-



Week 1



Week 2

ing them their very first meal. Then you should use half the strength stated on the bottle. The EC of the nutrient mix will then be around 1.4 depending on which brand of nutrient you use. Once the plants have grown bigger you can begin giving them a higher dose. In this way you go on adding a little bit more nutrient to your water.

What often happens if you keep adding the same amount of feed is that your plants will develop a deficiency. You are giving the same amount of nutrients but your plant is getting bigger and bigger and so can use – or needs – more, and this is something every grower needs to keep an eye on. This is why I am no big fan of off-the-peg growing plans, because every growing space and every plant is different. You have to look at your plants themselves and then decide what is best for them.

Common deficiencies

The most common deficiencies you might experience are nitrogen, potassium or phosphorus. It is especially during the growth phase that your plants are susceptible to deficiencies in nitrogen and potassium. In my experience it's usually a potassium deficiency. A nitrogen deficiency is easy to spot as the tips of the leaves start to turn yellow and the leaf gets yellower towards the leaf stem. The plant sucks all the nitrogen out of these leaves because it does not

have enough elsewhere. So old leaves are drained and all their nutrients taken to where new foliage is being produced.

A potassium deficiency is the most common deficiency I come across, and it is recognisable by the fact that the leaves yellow from the outermost edge inwards, towards the main vein in the middle of the leaf. It is easy to distinguish from a nitrogen deficiency. Sometimes you might have both at the same time, and then the leaf will turn yellow from the leaf tips and the outer edge simultaneously.

During blooming is when you have most chance of getting a phosphorus deficiency, and/or in potassium too. A phosphorus deficiency is harder to recognise, but the plants develop a dark purplish appearance all over. Their bloom is interrupted too, so they end up smaller. But the most important thing to know is that is that these deficiencies in the short term are not damaging to the plants. Deficiencies are therefore actually simple to learn about and easy to remedy. By giving extra feed to your plants you can watch the yellow leaves turn a lovely green again. They gorge themselves until full with a fresh load of nitrogen, phosphorus or potassium. That is why as a beginning grower it is better to under-feed than over-fertilise.

In this way you can learn the boundaries of the plant while

letting them experience shortages. You always begin with a few plants and after a little while, start giving them a bit more, since it's now going well. And if you then encounter problems, ones you do not know the cause of, then you know things are a bit more serious. If you know how to recognise a certain deficiency then you can rule this out straight away and look for other causes of the problem.

That is why it's a good idea when starting out with growing to take a single plant with which to experiment with by giving it absolutely no extra feeding and waiting to observe its deficiencies. When doing so try and find out which deficiencies you are experiencing by chatting about the symptoms in online forums and asking advice, or talk to friends or whoever. Once you have this knowledge soundly under your belt then things will go much more smoothly with future crops.

Recognising colours

Every beginner grower is a top grower as long as he is not colour blind. To really have your feeding sussed you need to spend time with your plants and observe them. It is that simple. When your plants have sufficient of everything then they will have a brilliant green colour and a healthy sheen over all their leaves. This is the optimum growth and bloom that we have been striving for in action.

If within a short while after this observation you do not start to raise your nutrient levels then certain deficiencies will start to creep in. Just look at your plants' leaves, and you will observe that they soon become a lighter green. When your plants turn a lighter shade of green this is an indication that they could use some extra food, and if you don't pay attention and wait too long before you give it to them, the leaves will turn yellow. So it is really easy to notice when things go sub-optimal.

Some older leaves that get little to no light will automatically turn yellow. The plant

has no further use for these old leaves and removes all the useful nutrients from them. So don't go leaping to the assumption that you have a nutrient deficiency just because a few leaves turn yellow.

Over-fertilizing will soon occur from the build up of salts that accumulate in the soil mix, or by giving much too heavy a dose of nutrient to your plants. Salts can be flushed away using an enzyme preparation. This product makes sure that dead root matter is removed – a good thing since that the plant is constantly making new roots and letting old ones die off – as well as salts from the substances you have been applying. This does not eliminate all chances of over-fertilization, but lessens the chances of it and makes your medium healthier, which your plants will also appreciate by growing and blooming better.

Over feeding

When you do manage to get tip-top, lovely, dark, super-green plants it is time to watch out. Now giving too much nutrient might lead to over-fertilization. After all, the plants have more than enough food on their plates. So you are best off waiting to give them any more food until you see that the plants have started to develop a paler colour once again. Make a note of how many days it takes before they do this. If it takes a couple of days, for example, make a mental note, go back to feeding them again and they will get their dark green colour back. Once you've established this period, you can safely give them food every two days. After all, you have now tested how long they can go before they start to need another feed. If you're not sure whether your plants need feeding or not, then it's best leave them a while longer.

To make things easier for growers there are such things as pH and EC meters. The pH is the level of acidity of your medium, which determines how easily the plant can take up certain substances and so in what quantities these can be given. With an EC meter you can measure the precise level



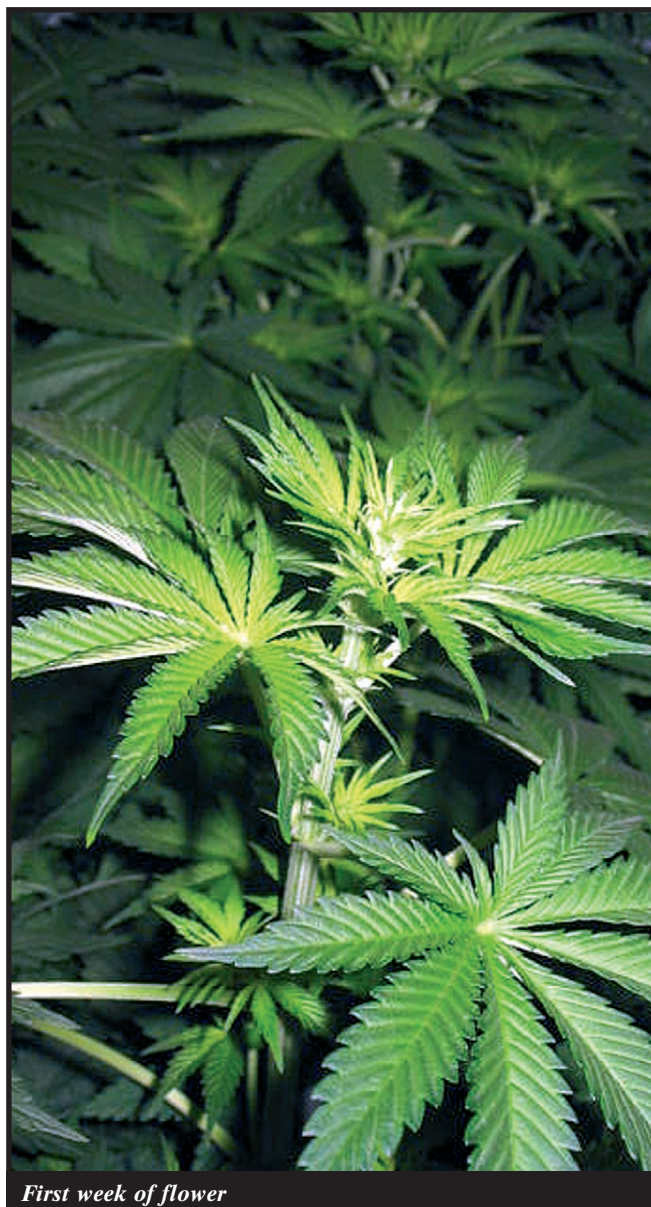
First week of flower

of nutrients you are about to give the plants. With it you can slowly build up the dosage more easily while you raise them. These devices are handy if you want to get everything just perfect, but they are not a real 'must have'. That is also why it is always recommended that a beginner grower starts out growing in soil, because these instruments are not necessary. The soil acts as a buffer. Once you've got your basic growing technique off, then it's worth getting EC and pH meters just to make things easier for yourself to raise even better plants.

Grow style

The two most common methods of growing plants are the so-called sog and scrog. Sog (which I believe is short for 'Sea of Green') means that we have many plants per square meter and then give them just a few days or even none at all before sticking them straight into bloom. The result of this is that the plants produce few or no side branches and limit their upwards growth. Then you will end up with a pole of buds from top to bottom. This method is especially liked by commercial growers.

By giving a little longer growth to your plants they are given the time to develop side branches, then you get bushy plants and this method is used by the majority of growers. If you only have a few plants in a square meter then you can choose to employ the scrog technique. By 'scrogging' I mean that we are going to remove the main top shoot from the plant. It's a form of 'topping', basically. The main shoot is to be found in the centre of the plant, on the main stem. It makes new leaves and side branches. When we snip off this head then the plant will stop increasing in height. What happens then is that the plant spreads her energy across the remaining side branches. All side branches will therefore become stronger in their growth. In this way you get a broad plant with side branches that are roughly the same height. The majority of buds in turn will be found on the uppermost side, which is



where most of the light falls. The plant will end up shorter but fatter.

It's best to do any topping fairly early – after two weeks growth, at least a week before the bloom is scheduled to start if you want to enjoy its advantages. You must give the plant some time to get used to the process. In this way with just a few you can achieve as big a harvest as possible.

The net effect

An expert scrogger will fix a net over his plants and this then trains the side branches to be nice and evenly spread apart, so maximising the amount of light each branch receives. Once in bloom, you get a gorgeous layer of buds. With the sog method you end up with just one huge bud with only a

few medium to smaller buds on the plant. With the scrog method you get lots of medium-sized buds. An advantage of this is that you also have a lower chance of developing a mould infection, because you have lots of little buds in place of one big one. So if you live in a damp environment or have trouble with too high an air humidity inside your grow space, then scrogging is a good method of keeping your chances of bud rot down.

The yield from both growing methods is pretty much the same if you do them right. A lot depends on what variety of plant you are using. One sort of plant is better for a particular growing style than another. If you use the sog method you are better off with a plant that is known for producing an enormous head bud and which

forms elongated buds and few side branches. With scrogging you more want a variety that does make loads of side branches and above all, that produces plenty of buds on these and grows a sturdy stem.

If you decide to scrog, then it is advisable to remove the lowest branches of the plant. We want to make sure that as much energy as possible is directed to the uppermost branches, where the light from the lamps is going to be falling. The lowest side branches get little to no light and so will make fluffy buds. By getting rid of these you will get good air circulation under the plants and all available energy will be sent up to the higher buds. You can also do this with the sog method if you notice that the leaf coverage is getting too dense. By removing the lowest side branches of the plants in a sog crop, the higher situated branches will develop better, stretch themselves out and thereby grow closer to the light source, getting heavier as a result.

There are many variations of these which you can experiment with of course. Some growers snip all the side branches off during the growth phase and let only the best developed 4-6 side branches behind on the plant.

To make our own plants feel as welcome as possible I would advise you to always give them lukewarm water – around 23 degrees. To us this actually still feels rather cool. But cold water makes the roots of our plants recoil in shock and it will retard the growth and blooming of the plant as a result.

To finish off, I'd like to add that the growth period is as important as the bloom period, if not more so. The serves as a basis for a healthy bloom period. The better you get at growing, the faster you be able to get your plants to their optimum size in pre-growth, thereby saving the time they would have had to spend in the growth period, thus saving not just time but electricity too.

Growing for Dummies Part 8

From the first signs of buds to an exuberant bloom

Growth- and bloom-feed

During the blooming period we will be switching over to using bloom feed and we can stash away any remaining growth nutrients until the next time, however little we have needed it to date. If you have used well pre-fertilised soils, then you will easily have been able to go a few weeks without having had to use any liquid fertiliser. Naturally, your pre-growth period should not last too long, otherwise you will have to use growth nutrients. For this set-up we solely used Plagron nutrients; some brands use just a single bottle that you can use to make up both growth and bloom nutrient, while others make separate growth- and bloom-nutrients.

Many growers also continue to give their plants growth nutrients into the first or second week of the blossoming period because this is a sort of transitional period and the plants still have a great thirst for nitrogen and other building blocks for their rapid development. By doing this the plants will also end up somewhat bigger, given that the bloom feed stimulated the plants to switch their attention (and resources) more to bud formation than increasing their size. In this way, you can use your giving of nutrients to play around a bit with the eventual size of the plant.

If you already have good-sized plants and would prefer that they remain a little compact due to constraints on the space you have available for them, then just give them bloom feed immediately. If your plants are on the small side and will not fill your space optimally at this rate and you want increase their size as much as possible, then you can continue to give them growth feed for a while longer to stimulate this. Of course, these differences are not huge, but every little helps, and a few centimetres more here and there can make a nice difference.

The end is almost in sight, and in just another couple of months of blossoming we will be ready to get our sheers out of the cupboard. In order to get the very best out of each plant we need to tune all the possible factors and harmonise them with each other. After all, it often the tiniest improvements that lead to the most enormous results. This issue I will look at each of the important factors in turn, as well as how you can quickly remedy a nutrient deficiency.

Blossoming is well and truly underway and after a couple of weeks white hairs start to sprout on various parts of the plant. The formation of the buds is now slowly but surely underway. As I have said before, do not forget to separate the male from the female plants. The males that develop will soon start to develop little balls that within about three weeks will be ready to burst and spread pollen all over the place, fertilising the hairy females.

The first three weeks of the blossoming period is in actual fact a sort of growth period. After setting your plants into bloom by putting the lighting on a 12 hours' light / 12 hours' dark time scheme, the plants will start to bloom (grow) explosively; they can very quickly double or triple in size. Especially if this is your first time growing it is a really wonderful sight to behold, watching that little sprog of a bush transforming into a strapping whopper with buds swelling bigger and bigger, whose THC-rich crystals begin to pile up in mounds. The specific odour of the plant develops more and more, leaving you barely able to wait to harvest some of those buds and get enjoying your first spliff of the new harvest.



Close-up of a bud after 2.5 weeks in bloom

In order to achieve a good bloom there must be sufficient carbon dioxide for the plants. They need CO₂ for a vigorous growth and bloom during the daylight hours.



Overview of the seed plants after 2.5 weeks in bloom



A week later, after 3.5 weeks of bloom there is already a clear change in the form of the buds

After three weeks' blossoming you will notice that the plants have reached their maximum size. The plants have stopped putting on any more height or girth and now they will be doing the real work of forming their buds. At this moment it is important to give them bloom feed, as the plants have a greater need of phosphorus and calcium. These are some of the most important building blocks for a good bud development. This means it is a good idea to also get your bottle of PK 13-14 out. PK 13-14 (I used Plagron's PK Plus) is a separate bloom feed used as a supplement to your regular bloom feed. As you might have surmised from the name, it contains extra phosphorus and calcium that your plant really needs to be able to reward you with big, fat buds. There are two ways of administering PK 13-14. You can start with small doses from the first

side of the bottle too.

The second way is to wait until the fourth week of bloom has begun, because it is this moment at which the most bud development begins, and then go straight to giving them 1.5 ml/per litre immediately and continue with this until the end of blooming. In short, using PK 13-14 makes for harder and denser buds by supplying the plant with a wealth of building materials.

Do not forget too that at this stage you must tailor your nutrient-giving to the needs of the plant. This has now developed very different nutritional requirements to when she needed lots of feeding for her strong development during the preceding three weeks. If you continue to give them as much nutrient as you have been doing, you run the risk of over-fertilising very

ties have a very rapid increase in bud size between the third and fifth week of blooming, while other varieties put their real weight on as measured in grams in the last weeks. This means that you just have to look carefully at your plants (and listen to them) to know what their nutritional needs are at any particular moment. I mention this because many beginner growers start off well and think that they have everything running smoothly, when after a few weeks the needs of the plant changes and the grower sticks to her old pattern, which can then result in him only managing a feeble harvest.

Feeding the leaves

The plants bloom enthusiastically and are fed with Algal Bloom. Every week they are sprayed with Phytamin Leaf Feed, and as a bloom stimulator, Plagron's Repro Forte is applied, which serves to ensure that more sugars are transported from the leaves to the buds. Every two weeks enzymes are also given. These enzymes clean your medium by removing dead roots and reduce the salt accumulation that has occurred from the application of nutrients.

Seed plants have the tendency to grow in height earlier than clones. So by now they will be

considerably larger and for that reason I strongly recommend if you have limited head room in your grow space that you 'top' or bend your plants. You bend a plant by pulling down the crown bud with string fixing it bent under slight tension. By doing this you get the same effect as topping (removing the top of the plant) but with the advantage of you getting to keep the crown bud. The lowest-situated side branches will develop better and the plant will develop more buds, on a wider girth. Grow spaces that are lower than 1.5 metres in height will need their plants topping or bending earlier, or else given a much shorter growth period.

Better too little food than too much, but if you should experience a severe nutrient deficiency that you cannot solve by recommencing with the bloom feed, then the quickest way of solving the problem is by applying leaf feed. You make up some nutrient mix as you normally would and spray your plants with the solution. Plants can also take up nutrients via their leaves, and the advantage of doing it this way is that you do not change the pH of your medium. Spraying your plants is best done just before you turn off the lamps and / or just before you switch them on.

The problem that presents itself when you get a large deficiency to deal with is that when you give the plants a nutrient solution (via the medium) you have to wait until the plants are thirsty again. There is no point in giving them a feed solution every day if the plants can't actually take up what they need. You're forced to wait a while, certainly longer than you would wish, before you can adjust the deficiency properly. By combining watering with the application of leaf nutrient, then the plant gets what it needs immediately via the leaves. Generally, you will notice the improvement the very next day. You will observe that the yellow spots on the leaves will have regained some of their colour again. By continuing to give feed water and leaf nutrients, the plants will soon once again be a ravishing shade of green.

Another advantage of leaf feeding is that you can safely experi-

Better too little food than too much, but if you should experience a severe nutrient deficiency that you cannot solve by recommencing with the bloom feed, then the quickest way of solving the problem is by applying leaf feed.

week and then slowly build up the dose each week. So start with 0.25 ml / per litre in the first week and by the third week aim to be giving 0.75 ml / per litre. How much you need to give is usually written on the

quickly. If you had been giving them nutrients every day in the first few weeks, then maybe they only need them every other day now. It is something to pay attention to. Every plant blooms in its own way, so some varie-



The production begins to gather pace nicely (3.5 weeks' blossoming)

ment to find out what kind of deficiency your plants have. Many growers are stricken by doubts as to whether they are dealing with an under-fertilisation or an excess. By simply spraying the leaves with a feed solution you can very quickly observe if there is a positive or negative reaction from the plant and from that deduce what the problem is.

Something that is always handy to have around is a set of bottles filled with individual nutrients such as nitrogen, phosphorus and calcium. With these you will be more easily able to experiment with your nutrient problem. Suppose you have a nitrogen deficiency and are forced to use a general nutrient solution to correct it; you are also giving the plant the elements that it does not need too. Adopt the simple expedient of keeping a separate bottle with only nitrogen in it. Adding this will raise your plants nitrogen levels without influencing the other fertiliser components. This bottle system is especially useful for outdoor growers who are in the process of raising large plants in pots and needing to apply large volumes of nitrogen. Particularly during heat waves it is handy to spray your plants with a nitrogen solution, or simply increase the percentage of nitrogen in your general feed water. Obviously, the same proc-

ess can be used for phosphorus and calcium deficiencies.

Ventilation

In order to achieve a good bloom there must be sufficient carbon dioxide for the plants. They need CO₂ for a vigorous growth and bloom during the daylight hours. The more CO₂ in the air the faster your plants can develop and the greater their tolerance for high temperatures. How you have your grow space set up is very important. An optimal space is one in which all along one side, at the very bottom, holes have been bored to allow air in, while on the other side there is a vacuum extractor – placed as high up as possible. This set up offers an optimal air circula-

tion from one side of the space to the other side. The CO₂-rich air that enters flows over the plants, is used by them, then the CO₂-depleted air is sucked out, drawing fresh air back in via the bottom-most holes.

If growing in larger spaces and you are using a fan or air blower of some sort, this can be placed at the top of the space if you are also using an air-sock. The air blower works in exactly the opposite way to a vacuum pump: rather than sucking air out, it blows air in. This is unnecessary when growing in small spaces, which have sufficient air renewal with a pump. An Air-Sock is a long sock made from textile, between 3-5 metres in length. If you just use an air blower then you are usually getting cold air pumped into one side of your space, which means the climate on this side is not at its optimal temperature. Nor is the CO₂ spread evenly over the plants. The Sock works as follows: you fasten it on top of your air blower and fasten this to the ceiling. Once the blower is switched on then the Air-Sock is filled with incoming air, which then enters the space 3 to 5 metres into your space. After that the CO₂-rich air is evenly spread throughout the space, and the effect of this is that all your plants can better enjoy the fresh air, plus the cold outside air is given time to warm up, so the climate remains nearer to optimal. It is simple but effective. Having too little ventilation produces weaker growth and blooming, the plants can not develop well, and yellowing of the leaves can occur.

A rotating fan is another important piece of grow space equipment. This does not only ensure

that you have good air circulation in your space which mixes the warm and cool layers of air together, but your plants also like a nice breeze. Thanks to the breeze your plants will develop nice thick stems, and they will mature into slightly smaller and more compact adults – and as you know by now, a thick stem determines to a large extent the eventual yield your plant will be able to produce. By and large, the plants with the thickest stems will also be the biggest yielders.

Bud formation

The most important weeks of the blossoming period are from the third to the fifth week of bloom for the majority of plants. Given that now most plants will be devoting most of their energy to developing their buds, during these coming weeks they are going to increase very rapidly in size. So now is the time when you really have to make sure everything runs as smoothly as possible. The beginning of the third week is also the last chance you have to spray your plants with an organic pesticide. The buds are not yet hard and compact. It can be a good idea to spray them now preventatively, rather than wait until the fifth week and find that your buds are now crawling with bugs, by which stage it is not advisable to spray.

There's not much more to do than simply giving nutrients during this stage – besides of course enjoying the sight of these gorgeous buds gradually appearing. More and more white hairs are being produced and slowly but surely separate small buds grow into each other to create one huge bud.



Young buds in full-on development mode



This Orange Bud will just get fatter and fatter



White plastic ensures a good reflection of light for the plants placed outdoors

Growing for Dummies Part 9

The last weeks of blooming



Some Orange Bud buds nearly fully developed after five weeks of bloom



A White Pearl that after 6 weeks of blossoming is still hard at work



Close-up of an Orange Bud bud after 6 weeks of bloom

After weeks of mounting excitement the long-awaited moment – the harvest – is finally within arm's reach. The plants have grown incredibly quickly through their first three weeks of blossoming and have undergone a real transformation, after which began the slow formation of the buds. Ever-increasing numbers of white hairs appeared and formed the basis of the eventual buds, over which we have been drooling in anticipation. After five weeks of blossoming there should now be hard, THC-dripping buds found on your plants, that are still growing and expanding but which have now put the larger part of their development behind them.

The blossoming plants should still be lovely and green, and the THC production firing on all cylinders. The leaves around the buds will become stickier and stickier and the many THC-rich resin glands produced on them will later be used for making a nice lump of hash with. So at the harvest that is just around the corner we will have the leaves that we have trimmed from around the buds, and also the larger leaves that contain THC, both of which we will lay to one side to dry out well. We will then also have to decide whether we want to make water hash or skuff. There will be more about this in a future article.

In any case, as long as you have not given your plants an overdose of fertiliser then the very sight of your garden should by now be enough to get your mouth watering. It should look marvellous under the strong HPS illumination, which makes the numerous THC glands on your buds and leaves dance and glint in the light. Because blossoming plants have additional demands for phosphorus and calcium, we give them plagron

As long as you have not given your plants an overdose of fertiliser then the very sight of your garden should by now be enough to get your mouth watering

pk 13-14 as an extra stimulation of the development of their blossoming. These substances are found in every basic nutrient mix, but in lower volumes, and with pk 13-14 we can make up the shortfall. The buds will be harder and more compact as a result. If you are a newbie to growing, you are best to begin with the basic package of fertilisers, which consists of base fertiliser containing all NPKs (nitrogen, phosphorus and calcium-containing compounds), plus a pk 13-14 and a root stimulator. With these basic products you will be more than able to grow yourself a great harvest.

If you've got the bit between your teeth and it looks as if your harvest is going to turn

out to be mostly problem-free, then you can apply a number of additional products such as a bloom stimulator and/or boosters and enzymes. It does not make any sense to add these relatively more expensive products immediately because they only help as long as everything has proceeded smoothly during the grow. Since you as a relative newcomer will undoubtedly have made a number of mistakes, then these products

will in all likelihood be overkill and unlikely to have much added value. Once you have worked through your main mistakes then these products do indeed offer something of value to your eventual harvest. Enzymes take care of removing old root remains and reduce the salt accumulation in your medium that comes from giving them additional nutrients. Once you have been using the same bottle of nutrient for a while you will notice the top develops a white, crystalline deposit on it. These are the salts I'm referring to. By using organic nutrients such as plagron you can also reduce the accumulation of salts, since these contain considerably lower levels than the bio-mineral nutrients.

On pots and uniformity

The size of pots that we have been using is dependent on the number of plants that we are growing and the number of weeks growth that we gave them. These factors are connected to each other. If we have a larger number of plants to pack in then we need to use smaller pots and give the plants less time in growth. For example, if we have 16 plants in one square metre and give them a grow period of between 5 and 9 days, then the plants will be happy with 5 litre pots. If we were to reduce that number to 10 plants and give them a grow period of 10-14 days then the plants will need 7-11 litre pots. So the fewer the plants we grow, the larger the pots we will use and the longer time in growth we will give them. The yield you end up with is more or less the same whichever method you use. The only difference is in the amount of time we need in total to get our harvest. So someone with 16 plants and using the popular bloom period of 8 weeks will take about two months and five days from start to finish. If you have 10 plants then it will take you about two months and two weeks. In other words, you will take longer to get the same yield.

Commercial growers in particular find it important to get to harvest in as short a period of time as possible. That is why they often stick 20 plants in a square metre and give them only 1-3 days' growth depending on the medium that they are using. In this way they can harvest every two months if they use a variety that does the business in 8 weeks. In general, plants with more of a Sativa influence in them take longer to bloom than those dominated by Indica genes. So you see that you can be guided in your original selection of plants as much by the blossoming period

as by the eventual effect of the dried smokeable material. If you prefer a more 'up' high than a heavier, bodily stoned, then it is advisable to plump for a Sativa cross that takes

always needed, and not only wastes electricity but also creates more noise than is strictly necessary. It is not actually the ventilator itself that creates the noise but the stream of air that

The longer you wait to harvest, the 'stonier' the cannabis will be; if you harvest it a little earlier then you will get more of a 'head high'

a little longer to bloom, say between 8-10 weeks. Even so, you must always take account when growing from seed that every plant is unique and there will always be early-blooming, medium long-blooming and late-blooming individuals in your selection. If you read somewhere that a particular variety is 'very uniform' this means that there will be little difference in the time to harvest between the adult plants. So you can expect 80% of the plants to end up with the same growing time, and when a variety has less uniformity there will be larger differences between the plants in their blooming period as grown up plants. This is also an important factor you should take into account when choosing a particular variety.

Ventilation

All the nutrients and water that you give your plants during their blooming period have to go somewhere. The water is evaporated from the leaves of your plants and then floats freely in your growing room. Since at the beginning of the blooming the plants still had little vegetation and were rather small, then little moisture was released into the air by the plants. Thanks to this, the air moisture was if anything too low rather than too high. Because our green plants grow more rapidly in a moister climate than in the dry heat produced by the HPS lamps, you can ensure a faster development and growth in the first week(s) by allowing the air moisture to rise. The easiest way to achieve this without buying an air humidifier is to attach a dimmer switch to your ventilator. With a dimmer you can vary the speed of the air extraction. Connecting a dimmer is handy because with it you can better influence the climate. What's more, a ventilator without a dimmer always operates at full speed and this is not

comes out of it. So you are better off having a dimmer during the first weeks; it will allow the pump to not only operate more softly, it will suck away less moist air, thereby keeping the air moisture content higher and allowing your seedlings to develop more quickly.

As soon as the plants become bigger you can afford to let the pump do a bit more work, as the plants are producing ever greater quantities of moisture, and you need to make sure that the humidity does not start to creep up too high once the formation of the buds is well and truly underway, around the fourth week of blossoming. Too high a humidity can lead to the rock hard buds beginning to develop mould during their last few weeks of growth. When the humidity is too high there is a greater chance of damp getting inside the bud structure, which continues to grow around it, trapping the moisture. This

trapped moisture can incubate moulds. Varieties of weed that develop especially hard buds have a greater chance of developing mould than buds with a more airy structure, thanks to the latter not trapping moisture in them so easily. Once you have discovered mould in a bud then it is as good as lost, since the mould has been active inside before it became visible on the outside of the bud. When you have a lovely-developed bud and then a strange yellow-coloured leaf sticks out the middle of it - even though you have definitely been giving her enough nutrients - then you are best off pulling it softly out. If the leaf comes free easily, then the bud is infected.

So make sure that you have a good ventilator in action during the last weeks. It is an investment when you are just starting out, but is a 'must' if you want to make sure that your harvest comes off without a hitch. Not only does the ventilator

They will need this fresh air to keep growing and blooming at an optimum rate. Try and make sure that during the last few weeks of blooming the air moisture is kept below 50%.

Of course, you can grow in a cupboard without a ventilator by keeping the door ajar, but then will not get optimal results. If you are going to do something, you are better off making sure you do it well. The dimmer in combination with the ventilator will enable you to master the environment better, and an outstanding climate increases your yield and the quality of your eventual harvest.

Keeping the noise down

For those of you who have your growing space set up in the vicinity of a bedroom, then there can be a problem of complaints about the noise made by the ventilator. There are

If you are growing hydroponically then don't cease feeding until the last five days, as the yellowing process will happen very quickly if you are growing in water only

ensure that the warm, damp air is removed, but it also makes sure that fresh, CO₂-rich air is sucked into the space in which your plants are hard at work.

various ways of reducing the noise. First and foremost you have the aforementioned dimmer, since a ventilator that is not running at full speed makes



Since every seed is unique there can be considerable difference between individual plants grown together in terms of size, smell and taste.

less noise. So try and run yours at about 75-80%. That is why it is always best to go for a ventilator with too great a capacity rather than too little. A large ventilator running at half speed makes less noise than a small ventilator running flat out. If this does not help sufficiently, then you can have the ventilator built into an insulated box. Just attaching a length of hose to the ventilator already reduces the sound considerably because the sound is not immediately dispersed but runs first along the hose, by which it is reduced in volume. Should these efforts still not give you the results you wish, then you can fit a sound muffler to your ventilator. This looks something like a carbon filter; a metal tube that you fix to your ventilator so that the sound produced must first pass through the tube, where it is reduced. Then simply fit a normal hose to the muffler and you'll find the noise has largely been filtered out.

The last weeks of blooming

The majority of the bud development will have happened by the 6th week if we are growing a medium long-blooming variety. In the last two weeks the buds will be mostly ripening and not growing further in size to any great extent. The buds that were chock full of bone-white hairs will now begin to turn slowly brown. Depending on which variety you are using and the climate of the space, this ripening can take a variable amount of time to finish. Once some 80% of the little hairs have turned brown then it is time for digging those clippers out the cupboard and preparing for harvest.

Of course you can also influence the sort of high you get from your cannabis by harvesting your buds a little earlier or later. The longer you wait to harvest, the 'stonier' the cannabis will be; if you harvest it a little earlier then you will get more of a 'head high'. So you can make your mind up according to your own personal preference. Since we usually aim for some sort of golden 'middle way,' we will



This Orange Bud is obviously ripe, as is clearly visible from the coloured hairs.

go for harvest when 80% of the hairs are brown. Do not forget that sometimes white hairs can turn brown by influencing the climate or messing with the humidity. It does not automatically mean that the plant is sure to ripen once you get a few brown hairs. A bud that has died off or that has been infected by mould will also develop brown hairs. Harvesting is not an exact science but in short, if

you have a mostly brown hairs and a few of the lowest buds still have white hairs, you can safely go ahead and start chopping. You have to look at the plant as a whole when you are doing your 80% calculations. In order to experience the varieties of high you can achieve, you might want to harvest at staged intervals, and once they are dried take each sample for a test smoke.



Sometimes you will also encounter freaks with abnormalities among your plants, such as this bud that is blossoming away on a large leaf

As the end approaches nearer you will find that one variety holds on to its nutrients more than the other. So for example a K2 will hold on to its nutrients longer, which means you have to stop feeding it in the last week and a half. The plants will remain a crisp green despite doing this, the hairs will continue to darken in colour, and the buds will slowly ripen, taking on a marvellous appearance with their wonderful layer of THC sprinkled all over them. Since there is still a lot of nutrition left over in the medium (exactly how much depends on the medium you are using) and the leaves also contain considerable nutrients within them, we stop feeding them for the last 1.5-2 weeks of bloom.

If you are growing hydroponically then don't cease feeding until the last five days, as the yellowing process will happen very quickly if you are growing in water only. In soil-filled pots, or on coco and suchlike there is still quite a lot of nutrient left in that needs to be used up. What happens when you stop feeding your plants is that they will take up and use all remaining available nutrients from the pots or medium, and once this has been done they will suck their leaves dry to get the nutrients out of these too. In other words, even after stopping with feeding the plant still has more than enough nutrients. You can still apply bloom stimulator given that this is not a nutrient substance. The leaves will slowly turn yellow and this is a sign that there is very little nutrient remaining in your buds by harvest time. In this way you also save a few weeks or days of nutrient expenses. Yellowing is therefore a good thing because having excess nutrients in them will add nothing to your buds. Eventually you will be able to remove some of the larger leaves from your plants in the last week or few days before the harvest, which will save you some trimming and will also allow more light down to the lowest buds and give them a better chance of adding some last minute weight before coming under the shears. This done, it leaves little else to do in the last few weeks but to savour the results of the source of your excitement...

Growing for Dummies Part 10

Harvest time!

The end is approaching, and hopefully I have helped contribute to your gardens being filled with many wonderfully green babes. In any case, all of you now have the ability to grow top quality cannabis, even if as a beginner your first time will contain some mistakes which will inevitably impact the size and to some extent the quality of your harvest. If things have gone really tits up along the way, learn from your mistake(s) and try to eliminate them next time.

One advantage of removing the large leaves a little earlier is that the lower-most buds on your plant will be far smaller than the top buds thanks to having been deprived of light. With the sudden increase in available light these can shoot up in size quite a bit in this last week, and ripen more fully.

At the end of the day it is usually stupid mistakes that are made, so keep getting your hands on as much information as you can; information is power!

If everything has gone pretty smoothly for the last 8-10 weeks of blooming, which most varieties need to properly finish their blossoming, so it's now harvest time. As long as you have not managed to give an overdose of nutrients, then some cracking good buds should be visible on all your plants. Overdoing things can cause damage, and it is better to give too little than too much. The closer and closer you get to the end of the blooming period, the more you can reduce the strength of your feed water, and even stop feeding completely for the last week(s). It can't do any damage to your crop if the plants turn a nice yellow, in fact it is a good sign. The plants are sucking out every last drop of nutrient from their own leaves, which means that there will be less nutrient residue left in your buds. The result is a nicer smoke.

Trimming "wet"

There are various methods by which you can harvest your beloved plants. Which one you use depends largely on the

number of plants you have and the size of them. The most common method and the one that gets my nod is "wet" trimming the buds. We proceed by immediately trimming the plants one by one the moment they finish ripening. We take a ripened plant and cut off the branches one by one and remove the leaves around the buds. This leafage contains a lot of THC and so we keep this to one side so that later we can make water hash

or 'skuff' out of it. In order to improve the eventual quality of your hash, try to avoid mixing in large leaves with little or no THC crystals visible on them with the leaf trim. The large cover leaves can actually be removed 2-3 days before you start the actual trimming, or even earlier. By doing this you will make the trimming a bit easier and also quicker, since you would only have to remove the big leaves during the trimming anyway. You can decide for yourself if you want to do this or not.

One advantage of removing the large leaves a little earlier, like a week before the harvest, is that the lower-most buds on your plant will be far smaller than the top buds thanks to having been deprived of light. With the sudden increase in available light these can shoot up in size quite a bit in this last week, and ripen more fully.

By trimming the plants wet you can trim much shorter and neater than you can with dried buds, and this will present the buds to their best. The first time does take a bit of getting used to as you figure out the best way to trim them. But after ten minutes or so you will have usually found the technique that is quickest and



This lady is ready, judging from the brown hairs



More than 80% of her hairs is brown, this lady is more than ready too



Orange Bud ready for the chop



at the same time neatest. In itself, trimming is not hard, but the best technique will give you the loveliest end results. Women's hands are more suitable for trimming since they are slimmer and can work with more refinement.

Make sure too that you always have some reserve sheers handy when you start the job for real. There are various types of trimming sheers on the market, and I would say it's best to try out several of them since everyone has their own preferences. Once you have decided which your favourite is then in future trimming sessions you can start straight away with this model. Cheap sheers and scissors that are not sharp enough or are soon knackered are less suitable if you want to get really stuck in. These just cause more trouble than they are worth in the long run – as well as making the trimming longer.

After just a short while trimming you will get a huge quantity of THC sticking all over your sheers. If you don't have some sort of product with you that removes the sticky hairs it can be pretty difficult to get the sheers clean again. A poor set will quickly break if the hinge is impeded by too much THC. So if you're working with cheap sheers, then it is especially important to have a spare to hand so you can switch over as soon as a problem with the first pair rears its head.

Dry trimming

A second method you can use is trimming the plants dry. In this technique, you first let the plants dry out before actually getting down to trimming them. The branches are snapped off and hung or placed in the drying room. Drying the plants out first in this way does take a bit longer than when your buds have been trimmed wet. It's a method used mainly when there is a larger number of plants and a shortage of time. Dried buds are less easy to trim and end up less neat. There is a relatively larger loss of THC since this is more easily

shaken off by movement when dry. This is very relative; there is still a huge amount present on both the buds and plant material. The drier this plant material, the easier it shakes free. This method is also mainly used on outdoor-grown cannabis. The enormous outdoor plants are hung upside down in a drying space and then systematically harvested. When growing a large number of smaller plants indoors this method – hanging whole plants upside down – is also used. There is no bad way of trimming, it just depends on the growing system which method suits you more than another.

Trimming space

Try and get a room that is suitably ventilated when you're choosing where to harvest. If your growing space is big enough, you're best off doing it in here while you run the ventilator continuously. If you have to do it in a different room you will find that the plants give off quite a bit of odour, and you might find keeping the door shut and only opening it to go get the next plant for trimming helps. Try to make sure that whatever you do, don't annoy the neighbours. Even though the smell of fresh cannabis smells divine to smokers, many civilians think the strong stench revolting. Using a small vacuum pump fitted with a carbon filter will help keep the smell down during trimming, or else do it in a place where there is no danger of causing a nuisance. Mostly you'll find that you pretty soon don't notice the penetrating cannabis smell yourself because you get used to it. This underestimation of just how big an impact you're making can end in tears.

Drying room

It is also important to bring the harvest to a good conclusion because after so many months of work it would be a crying shame to watch your buds turn mouldy. The ideal place in which to leave your buds to dry is in a cool and dark room kept somewhere between 15-22 degrees. It is not important to ensure that the room is very warm because the active ingredients need a bit of time to mature properly so that you get a decent effect when you smoke the cannabis. It is better to dry the buds slowly over two weeks then stick them in a warm room

to get them into a smokeable condition as soon as possible. This certainly does not improve the quality. Trying to quickly dry out your buds by sticking them in the microwave or in an oven because you happen to be temporarily out of smoke makes no sense at all. Not only will it taste very sharp and bad, you only get a weak high that's not particularly enjoyable. Cannabis needs time to come to its full strength, shall we say. It is not just because it is dry that it is ready for consumption.

When you lay out your buds to dry in their room make sure that they have a good circulation of air under and over them. Laying them down on newspaper or something else that is not aerated is not advisable. There are special drying racks you can buy and I recommend them highly for drying your cannabis on. These are racks with tensioned threads across them thanks to which the buds get plenty of air from underneath. When you just stick your buds on a piece of cardboard then the side of the bud that comes into contact with the cardboard loses its moisture with more difficulty, which increases the chances of it developing mould considerably. You are better off laying harvested buds next to each other rather than piling them on top of each other. If mould does take hold it will spread less easily from bud to bud. A good 75% of the harvested bud is made up of water that has to be removed. When this moisture has trouble being removed is when we get the risk of mould. If you start with 500 grams of wet buds then you will end up about 125 grams of dry smokeables.

Too low a temperature can also mean that the buds spend too long damp, and again this increases your mould risk. There are

The leafage contains a lot of THC and so we keep this to one side so that later we can make water hash or 'skuff' out of it

always mould spores floating in the air, but only when you create the poor conditions they like do they get a foothold on your buds. Insufficient ventilation thanks to putting the harvested buds in too small or to closed off a space, or by leaving them to dry on a hard surface rather than on an aerated surface is one of the most com-



Some of the Plagron fertilizers I used for this series

mon causes of mould. The fear of mould is pretty unwarranted so long as you bear these factors in mind.

Ripening

There is a big difference between ripening and drying cannabis. After just one week the small buds are usually dry, while the medium to large buds will need two weeks. If you have some really huge buggers in your garden, they could use a few more days than that even. You can always choose whether to dry any enormous buds as a whole or to break them up first, because the structure of huge buds is made up of smaller ones that have grown together. Smaller buds dry out quicker so if time is an important factor you're better off breaking them up.

The trick to telling whether your cannabis is indeed good and dry is to take a large bud and try to break its twig. When the twig snaps easily the bud is good and dry. Don't try and convince yourself they're ready by taking a small bud twig and breaking that. All your buds need to be properly dry before you can ripen them. The dried buds will be nicely smokeable after two weeks. They are not yet at their absolute peak, but they will do the business. Finally it is time to test them out, in the knowledge that they will

only get better in the future.

Once your buds are well and truly dry we can take care of the storage. In order to keep the quality of your cannabis high you will need to store it in a cool, dark space. So just put it in a light-proof plastic container or glass beaker in a dark place.

Light destroys THC. If a few of your buds aren't dry enough and you store them with others, then they will all end up damp again, even the ones that were actually dry.

Now you have to leave the buds where they are for another two weeks to ripen, which will put us a month on from the harvest. Thanks to the ripening process the buds will taste better, and the high will be better. As I said, cannabis needs time. After this month the taste will be fairly well developed, although some varieties do need a little more time than others in order to become a top smoke. Naturally, the buds will be good, but they can still be just a tad better...

So all's well that ends well, now we're left with a large volume of leaf trim over, dripping with THC, with which we have plans to make something wonderful out of. So not only do we have a good supply of smoking material but we can yet make a good water hash or hash oil, try out cannabis recipes when we cook, and more...



Plagron's Green Sensation, Top Activator

Growing for Dummies final episode

Two harvests from one grow

So now you have finally – after two long months of blooming and a period of pre-growth – got some cannabis buds raised by your own fair hands. But the fun does not stop there. As well as cannabis we can also extract some skuff or water hash from the harvested plants. Both principles are dead easy and efficient. In short, the harvesting is not quite over yet...

All the buds of the plants should by now be neatly stored for drying, and the very smallest buds should even be dry enough to take for a test smoke. Two weeks further down the line and all your buds will feel or look dry on the outside, but inside they are for the most part not yet fully dry. The larger buds will need a little while longer. Let them all dry out slowly in a dark room that is large enough or is equipped with a ventilator, so that the moisture released by the buds can escape.

Once the small twigs of the buds snap cleanly – including those of the largest buds – we can gather them all up ready for leaving to ripen so that the taste and smell of the cannabis can fully develop. Don't worry if the cannabis still smells a bit green during the first couple of weeks; some varieties do need a little more time to develop the typical, trademark smell of cannabis.

Skuff

In the meantime we have also let the considerable volume of leaf waste and trimmings also dry out. Depending on which variety you have just grown and the number of leaves this variety develops you should end up with about the same amount of dried leaf material as the weight of buds produced. Around 500 grams dry cannabis from your plants should result in about 500 grams of dry leaf, in other words. Of course, this will be a whole lot more with the more leafy varieties, and by the same logic



Bubbleator;; this is the sieving bag which holds the trim waste

if you're growing a variety that produces little leaf cover around the buds, you'll get less.

We only gather up the leaves that obviously have THC on them, generally the leaves surrounding the THC-rich buds. We also use large leaves that have THC on them. All other leaves that have no THC on them can be separated out. This usually occurs during the trimming of the buds, when we first take off the large leaves and then trim nice and neatly around the buds. In this way you should produce two piles of leaves during the trimming. In one pile you put the large leaves with no THC while the other pile is made of the THC-rich leaves. It makes little sense to just mix the two types of leaves in together, because by doing so you will only reduce the quality of your hash. There will be much more unnecessary contamination by the not THC-rich leaves in your hash.

It is very important in any case to let your leaf trim dry fully. Usually this takes longer than the buds themselves take to dry. Just 'dry' is not good enough; the leaf material must be so dry that when you take it between your thumb and finger and rub it, it just crumbles and falls apart. The drier the better and the greater the yield of hash you can expect from your

bud, and have about 600 grams of dry leaf material left over, you can count on perhaps 60 grams of hash out of this. This 10% yield is a fair rule of thumb when using well-dried leaf waste.

Naturally, it also applies here that the better the quality of your leaf material, the more crystals you will find on it, and the bigger your yield will be. So if you've grown a real white variety or another variety with a very high THC production, then logically you will get a larger yield of hash out of it.

Normally you will achieve more than a 10% yield when you are growing indoor cannabis; some growers have been known to achieve yields of up to 16% or more when using good leaves. When growing outdoors there will be much less than that possible, especially with poor autumn weather, which reduces the level of THC your leaves develop and so reduce the yield well below 10%. That is why it is important not to put yourself under pressure, since there is no point in mixing 400 grams of THC-rich leaf material with 200 grams of large leaves in the vain hope that this will produce 600 grams of good leaf material. You still have just 400 grams of good leaf material. By mixing I mean that instead of just using the neatly trimmed THC-rich leaves you add in the large THC-poor leaves.

Of course it is lovely that whether you get a good or a bad harvest of buds you can still bank on scoring yourself a nice lump of hash. This is always

leaf material. The THC crystals just come away from the leaf material much easier than when the leaves have just been lightly dried. This is when the leaf material looks pretty dried out, but it does not crumble. In this state, the leaf material gives up little to no THC crystals.

Our goal is to get as many THC crystals as possible and clump them together and make ourselves a nice lump of hash. The gold-yellow powder that is on the buds has a very different effect when you smoke it pure and some smokers prefer the sweet high and effects of hash to the more stoned effect of smoking cannabis buds. Each to his own.

When you roll a joint with well-dried cannabis buds then you will frequently notice that your fingers become sticky with a sort of gold-yellow dust. These crystals are what I have been talking about. The nice thing about

Making water hash is somewhat more labour-intensive than simple hash making, but the quality that you get with it is something special.

making hash is that in addition to your regular harvest cannabis buds, you also get a reasonably large quantity of hash from the same harvest. So supposing you have a harvest of 500 grams of

handy when you have had a poor harvest of buds that are hardly worth the effort, as can happen with outdoor growing. Then you can just make hash of the whole damn lot.

Polination

The principle of making hash is fairly easy and works thanks to the breaking loose of THC crystals. There are various ways in which this can be achieved. You can get a sieve and spread your leaf material out on it and then shake or let the sieve be vibrated. The sieve you use must be fine enough to hold back all the leaf material and let only the crystals through. There are also specialised hash making devices into which you put a small amount of leaf material and then shake it by hand. The newest grinders work according to the same principle as hash making. Many grinders now incorporate a small sieve that allows you to collect the THC crystals in a separate compartment, whilst the cannabis itself loses little of its power. You will be amazed at the amount of hash powder you collect or actually lose when you use a normal grinder or crumble your buds by hand.

But if you want to process a reasonably large amount of leaf material then you are going to need a polinator. A polinator is a machine that uses the rotation of a drum with a sieve around it to break loose the crystals. You put the leaf material into the drum and a motor turns it around. The leaf material is shook up and down and thrown around and it is this action that shakes the THC crystals free from the leaf material. After a bit of time – 30-40 minutes is usually enough – we can stop the polinator and scrape the hash powder into a pile, and if we are going to press this powder straight away (prior to storing it for at least a year for ripening) to get hash. This pressed powder is called skuff. The reason why we press the powder is because this improves the taste and smell. It is also easier to make a joint out of, and more easily transportable. A pressed piece of hash is easier to share with someone than a pile of sticky powder. In any case, the better the quality of the hash the less powerful the press has to be. With poor quality hash you need a press that can exert a greater deal of force because the crystals have so much contaminating vegetable matter mixed in with them they have trouble sticking to each other. As well as the material you use



If the water is of dark brown colour, we can be assured of lots of crystals in the sieving bag

having to be very dry, it is also useful to give your leaf material a night in the freezer, especially if you are planning to use the polinator. The extreme cold makes the THC crystals break loose more easily. In the best scenario you would actually be able to make your hash inside a walk-in freezer or something else that allows you to keep a constant cold temperature. This would give you the very best product, but of course not many of us have such facilities to hand.

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But if you know someone who can make such facilities available to you, then it is well worth going to the trouble of using them.

It is always a marvel to watch how much hash powder can be extracted from even a small amount of leaf material. It is not necessary to polinate your buds given the quality of the leaf material, but of course if you are a real hash aficionado and don't fancy smoking your buds then go ahead and polinate your whole crop. Make sure than you first break up the buds though, so that the crystals from every corner of them can be shook loose. This will dramatically increase your hash yield. Also ensure that

no twigs (or as few as possible) are left in your buds because these can damage the sieve. A piece of sieve does cost quite a bit of money, so it is more than an annoyance to wreck it.

Although a polinator machine or suchlike does cost about 300-500 euros, it is an investment that will immediately pay itself off in the first harvest and hash production. It will also work well for many years without problem. The only pre-requisite

should you be thinking of equipping yourself with such a gizmo is that you need a nice amount of leaf material every few months with which to work with. There is very little sense in getting your own polinator if you only have a very small amount of leaf waste and the polinator spends more time in the cupboard than in action.

Water hash

The newest method of hash making in recent years is to make a 'water hash'. This works according to the same principles as polination, but uses ice cold water and churning to separate the crystals and leaf material. Making water hash is somewhat

more labour-intensive than simple hash making, but the quality that you get with it is something special.

To begin with, you cannot just toss it in a drum, and so you will need a bit more leaf material to work with. We need a bucket of about 20 litres capacity into which we will be plunging the special sieve bag. A water hash set consists of two or more bags into which a sieve is sewn. Each sieve has different dimensions so that one sieve lets the crystals through and the other sieve catches the crystals and so does not let them through. With many sieve bags the crystals of different sizes are caught separately. In place of one big pile of crystals in one bag, you end up with different qualities in each bag. Because the crystals in each bag differ between them, so the effects and taste of the eventual water hash differ.

So the bags are placed in the bucket; lower-most is the bag that will catch the crystals and only let water through. Above that come all the sieve bags that will hold onto some leaf material and a certain size of crystal.

We first fill the bucket with ice-cold water (in effect, around 3 degrees). The colder the better since then the crystals will break loose more easily. By putting a



This is the end result of the Ice-o-lator

(food) mixer in the bucket the leaf material is beaten and this action loosens the crystals. Do not use the mixer at full speed because the idea is not to reduce the leaf material to a pulp. This will only succeed in creating a poorer quality end product. I'll advise you once again to let your leaf material spend a night in the freezer before you begin.

If the temperature is not low enough in the bucket you can add ice cubes. This is unless you have a water cooler attachment for your water taps, which will generally give you water that is cold enough without having to add extra ice cubes.

What you can also do is an hour before you begin to make your water hash, stick a couple of 1-2 litre bottles of water into your freezer compartment.. This water will be perfectly ice cold by the time you need it, and perfect for making a quality water hash with. Watch out that you don't leave them in the freezer too long otherwise their contents will freeze, which is no good to you. Or I suppose you can cut open the (PET) bottles and use the frozen contents instead.

The simplest way to make water hash without too much hassle is to set your mixer on a timer so that it will run for 20 minutes,

then switch itself off for 5 minutes before doing another 20 minute cycle. Do this for about an hour and a half. It is important to make sure that your mixer is well and truly fixed in place so that it cannot break free and wreck the whole operation (and bags). If you're happy this is OK, then there's no need to stand and watch the mixer, switching it on and off.

Certainly do not use a beating attachment with sharp edges – I'll repeat: the idea is not to make marihuana leaf smoothies. The simple action of gentle agitation combined with ice-cold water will be enough to break the THC crystals free. It is pretty easy to see whether your leaf material is delivering or not. When the water turns a goldy-brownish-yellow colour then you can be assured that it contains a decent amount of crystals in it.

Since you use water extraction to make the hash there is far less contamination in your final product, which boosts the quality of the hash and its purity is increased. Water hash is also very different in its effect and power than ordinary hash. It's just something that you have to try for yourself in order to appreciate. Water hash can even be too powerful for inexperienced smokers.

Not all cannabis varieties are equally suitable for making water hash from; some varieties lose some of their taste. That is why it is better to act in the same way as a wine connoisseur, so to speak, and use both methods when you are trying a new variety so that you can determine which the best method is to make hash from with this particular variety. Making water hash is an experience in itself, and that moment when you first haul the final bag out of the bucket remains a magical one, as you shake it back and forth before opening it and there are the yellow crystals lying there in a pile. It is also true when making water hash that the drier the leaf material the better the harvest of crystals you can hope for. On the other hand, the quality will be slightly lower. The advantage of making water hash is that you can get to work even with fresh, un-dried leaf material. The yield when you use fresh leaf trim is quite a bit lower, but what you get is of very good quality because you get less leaf contamination than if you use dried leaf.

Bubbleator

Man is essentially a creature of leisure, and one of the drawbacks of the whole 'working with ice' routine, if I can call it that, is the difficulty of secur-

ing the mixer safely. So you can't just suddenly decide 'oh, I think I want to make some water hash', but must always first find yourself a suitable mixer that will operate safely in this context. This can discourage some growers meanwhile from even trying make this excellent variety of hash.

The company that makes the Polinator has recently released the Bubbleator on the market, which is designed to make water hash quickly. The Bubbleator is in effect a mixer and looks like a small washing machine. You just bung your leaf waste into one huge sieve bag that you then put inside the Bubbleator, which you then fill up with ice cold water, and by just cranking a handle you can churn the mix for 15 minutes. The advantage of the system is that you don't have to search for a suitable domestic mixer and everything is done with much less fuss and mess. You just let the Bubbleator run itself empty in your sieve bags and you're left over with the desired crystal pile. I reckon the Bubbleator will convince many new growers to give making water hash a whirl by cutting out the annoying Hunt the Mixer game. You can but the Bubbleator separately or in a deal that includes ice-o-lator bags.

The real hash-lovers leave their hash at least a year to ripen before they even think of consuming it. It is certainly worth you stashing at least a part of your harvest away. If you do this every year then you are soon going to build up a supply of fantastic quality hash.

I hope that you have been able to check out all the episodes of Growing for Dummies (check our website, www.softsecrets.nl for PDF files of any you missed), and to understand them. If this is the case and you have followed the simple basic instructions from the series, then by now you must be in the position of gathering in your own decent harvest.

Congratulations! You are no longer a Dummie, but a Soft Secrets-certified home grower!

The end